EDITORIAL

McKenna Duties

THE rush of American motor vehicles to Great Britain which has been going on for the last two months was not in vain. Definite announcement has been made that the reestablished McKenna duties will not be retroactive. Consequently, British representatives of American makes who stocked up previous to July 1st will enjoy the benefits of their foresightedness.

While the presence of the tariff on automotive products unquestionably will affect American sales to England, there is no reason to expect anything like a cessation of trade in that market. Previous experience with the same duties shows that, even with a tariff in force, American cars can be sold in good quantities in the British Isles.

The "Office Politics" Disease

IT'S the spirit in man—the will to do—that makes or breaks an organization in the long run. Systems and methods are useful in directing the efforts of men, but they cannot compel maximum efficiency when the will to do is lacking.

United Business Service touches on one important phase of this problem in a recent bulletin which is worth attention from automotive executives. It says in part:

"The first and most troublesome disease of business organizations is the 'office politics' that troubles every large organization as a result of individual ambition for advancement.

"This disease is like an internal cancer, invisible, but deadly. Often you do not see it or suspect its existence until you hunt for it. But it is sapping the vitality and business efficiency of the whole outfit. It thrives in secrecy and favoritism. It can be lessened by square and open dealing, by adopting tangible and measurable standards of achievement for promotion purposes, by a large measure of publicity among the members of the organization regarding what is done and why; and perhaps most of all by a personnel manager who is able to win the confidence of every employee by his honesty, sympathy and fair-mindedness.

The Insurance Controversy

INSURANCE companies and insurance agents are considerably disturbed about the recently inaugurated Chrysler insurance plan, the newly formed General Motors Insurance Company and the appointment of an N. A. C. C. committee to look into the possibility of setting up independent insurance arrangements. Involving, as the Chrysler plan does, direct dealing between the car manufacturer and the insurance company, little business would be left for the insurance agent did similar plans become general throughout the industry.

The insurance agent is a necessary part of the insurance structure, the agents argue, because he acts not merely as a salesman, but also as an underwriter, judging and selecting those to whom insurance properly can be extended.

Car manufacturers' experience indicates, however, that there is very little investigation of insurance buyers before the insurance is written. In fact, car builders have been urging for several years that greater care be exercised so that irresponsible or dishonest persons would not be able to make the taking out of insurance profitable to themselves.

Despite early reports that the Chrysler plan has been declared illegal in Nebraska, there is nothing to indicate that it can be held up on legal grounds to any wide extent. Newspaper reports of the Nebraska ruling, in fact, indicate that it is based on a technicality rather than on any basic fault in the plan.

Regardless of legal quibbles, the Chrysler plan or any other instituted by motor car manufacturers will be successful in the long run if it gives the public satisfactory insurance at a minimum rate and enables people to buy automobiles and insurance protection at a lower cost than otherwise would be possible.

Registrations

THIS year for the first time motor vehicle registrations at the middle of the year have failed to come up to the total shown at the end of the previous year. The number of vehicles registered in the first six months of 1925 was a fraction of one per cent less than the total for twelve months last year.

Basically speaking, this means that new car sales in the first half of 1925 were not quite enough to make up for the number of cars scrapped in 1924. (The cars scrapped in 1924 appeared, of course, as part of the Dec. 31, 1924, registration total.) Difficulty in getting entirely accurate data from some States, of course, makes it perfectly possible that the apparent loss this time might be turned into a gain if State records were better kept.

There is no doubt whatever that the total registrations at the end of 1925 will exceed those recorded for the end of 1924 by a goodly margin, probably by a million and a half. The growing size of the replacement market and the lessening proportion of first car buyers combine to make logical the condition shown by the mid-year registration figures published in this issue. Large gains at mid-year no longer are to be expected; new sales for a half year can't be expected to outnumber the cars scrapped during the entire preceding year. But a constant increase in total registration at the end of each twelve months still is to be expected for many years to come.

Our Industry Today

Total Motor Vehicle Registration of 17,548,377 *on July* 1, *Representing* 13.7 *Per Cent Gain, Is Nearly as High as for All of* 1924

NEW YORK, July 15—Motor vehicle registrations in the United States totaled 17,548,377 on July 1, 1925, a gain of 2,108,407, or 13.7 per cent over July 1, 1924, according to a survey just completed by AUTOMOTIVE INDUSTRIES. Registrations at the end of the first six months of this year were nearly as high as the 17,605,501 recorded on Dec. 31, 1924, as the total for the whole of last year.

With six months yet to go, total registrations by the end of this year are certain to surpass those of 1924 by a good margin, indications now being that the Dec. 31, 1925, figure will be very close to 19,000,000.

New York, as in previous years, holds first place, 1,332,168 cars and trucks having been registered in that State since the beginning of the year. California holds second position with 1,283,203 and Ohio is third with 1,232,943.

The real estate boom in Florida evidently has had a highly favorable influence on automobile sales in that State, the number of registrations today being 51.2 per cent greater than on July 1, last year. This is the largest percentage gain recorded by any State. Texas has the largest numerical gain over last July with an increase of 191,710.

One Car to 6.47 Persons

There are 6.47 persons per motor vehicle in the country today, population estimates of the Bureau of Census for July 1, 1925, being used as a basis for calculation. Fees paid into the various State treasuries by automobile owners totaled $218,333,826 for the first six months.

Motorcycle registrations dropped again, registrations in the first six months of 1925 being more than 10,000 less than in the first half of 1924. The present total is 115,400.

Automobile Industry Flourishes in Britain

WASHINGTON, July 16—Automobile firms in Great Britain are active and light-car makers are working day and night shifts, according to Mowatt M. Mitchell, acting commercial attache, at London, in cables to the Automotive Division of the Commerce Department. He says favorable weather has greatly stimulated sales.

"Imports of cars from the United States, France and Italy were well maintained," continues his report, "and record imports from France were made during May. The new 33⅓ per cent ad valorem duties on passenger automobiles were effective at midnight June 3. It is estimated that sufficient were imported to satisfy normal car demand for from three to four months.

"There was a further increase in pneumatic-tire prices on June 29 by approximately 10 per cent on covers and 15 on tubes, with prospects of another rise soon."

Confidence Shown by Stock Dealings

Crude Rubber and Dodge Advances, with Export Estimates, Feature Week

NEW YORK, July 16—The stock market of the week has reflected a growing sentiment of confidence in the immediate future of business and industry. Sharp advances in prices of several raw materials, notably crude rubber, copper and gasoline, have served to indicate the existence of a large demand and the absence of any considerable stocks. Prices of securities have tended toward higher levels, albeit the movement has not been uniform and in one or two instances there has been rather notable weakness.

Favorable Trade Balance

Estimates by the Treasury Department of a favorable foreign trade balance of approximately $1,000,000,000 are of peculiar significance at this time. It should be borne in mind that shipments of wheat and wheat flour approximating $400,000,000 played a considerable part in this balance and that present outlook for the domestic wheat crop does not indicate that we will have such an exportable surplus this year.

Exports of cotton were valued at about $1,000,000,000 and we can hardly look for any increase in this amount. Rather we are likely to see the dollar total of cotton exports somewhat lower, both because of reduced price and small ship-

(*Continued on page* 111)

TO ANNOUNCE NEW NASH LINE

KENOSHA, WIS., July 16—Nash Motors Co. is preparing to announce, within the next fortnight, an entirely new line of cars in both the special six and advanced six series, according to current reports.

Chrysler Insurance Test Case Promised

State Official's Opinion Plan Illegal in New York to Be Protested

NEW YORK, July 16—Chrysler Motor Corp. will carry to a finish its plan to issue fire and theft insurance with the cars it sells in New York State, where James A. Beha, State Superintendent of Insurance, has declared the plan illegal.

"The objections of the insurance commissioner have been turned over to our legal advisers and a test case will be instituted," said Guy Nunemaker, secretary to President Chrysler. "We believe that our insurance plan is legal and that the move against it is rank discrimination."

The California Insurance Department has ordered suspension of the Chrysler plan until an investigation reveals whether state laws have been met on the coverage. An official of the Chrysler Corp. is in California explaining the plan to the authorities.

The Indiana commissioner of insurance has started an investigation of the plan and the Pennsylvania commissioner is opposing it.

Beha's Opinion on Plan

In his statement in opposition to the plan, Superintendent Beha said:

"Insofar as the State of New York is concerned, the plan cannot have the approval of the Insurance Department. It is my firm opinion that any sales agent of the Chrysler Motor Corp. disposing of an automobile under the proposed plan in the State of New York, is selling insurance, and that legally he may not continue in such business without appointment as an agent by the Palmetto Fire Insurance Co. of Sumter, S. C., and unless he receives a certificate of authority to act as an agent from this department.

Hint Action May Be Taken

"Furthermore, under the law of the State of New York, the Palmetto is required to file rates which must be adequate, but not discriminatory. The insurance company has filed no such rates. Therefore, should the Palmetto Fire Insurance Co. engage in business in this state under the proposed plan, it would constitute a violation of both the agency law and the rating law of the State of New York.

"The Insurance Department of the State of New York will take such action against the Palmetto Insurance Co. and against any individual, firm, or corporation engaged in the business of selling insurance in this State under the plan outlined, as may be necessary to suppress violations of law and to invite a continuation of fair practices in the conduct of the business."

(*Continued on page* 111)

New Oaklands Have "Harmonic Balancer"

Revision of Prices on All Models to Make List from $70 to $350 Lower

PONTIAC, MICH., July 15—Preliminary announcement of a new line of six-cylinder cars featuring new bodies by Fisher and many mechanical refinements, including a "harmonic balancer," was made today by the Oakland Motor Car Co.

A revision of prices on all models is contemplated, the new prices to be from $70 to $350 lower.

It has been known for some time that Oakland and General Motors Research Corp. engineers have been working on the "harmonic balancer," which is said to be an outstanding contribution to better engine performance. General description of the new models will appear in next week's issue of AUTOMOTIVE INDUSTRIES.

Confidence Is Reflected by Stock Market Dealings

(*Continued from page* 110)

ments. It would seem that maintenance of our present position in foreign trade must depend largely upon shipment of petroleum, copper metal, steel and its manufactures and automotive machinery.

Secretary Hoover has pointed out that our increase in manufactured products exported during the year was 7½ per cent. Full effect of the recent imposition of a high duty on automobiles into Great Britain is something for the future to determine. But in the far places of the world there is a steadily expanding demand for American motor vehicles of various types, and as most of the large manufacturers are actively developing this business, it may be assumed that increased shipments to other countries will offset the possible loss of business in England.

U. S. Rubber Features Market

The extensive and rapid advance of United States Rubber stock easily was the feature of the market. This company produces approximately 25 per cent of its requirements of crude rubber on its own plantations in the Dutch East Indies and is reported to have landed its product here at a cost of approximately 30c. per pound compared with $1.11 per pound at which crude rubber sold in the local market this week. This latter was the highest quotation for the product since 1919. Fisk Rubber & Tire and Goodyear sold at new high prices for the present movement on reports of their being well stocked with raw materials and being favored with a substantial demand for their products.

Dodge Brothers issues advanced to new high levels to the accompaniment of reports, now of large sales and again of impending mergers. As a group motor stocks were strong, the average price of twenty of them establishing a new high level for all time.

In the accessory group Stewart Warner held its gain following its precipitate decline and recovery of last week and other stocks of this group were firm without individual movement of consequence.

An advance in the price of gasoline found only partial reflection in price changes in the oil stocks a slight increase in the figures of crude oil production for the week offsetting in part the favorable development.

Rails and Call Money

Expectation not only of increased business activity but of an early decision by the Interstate Commerce Commission in the Nickel Plate merger stimulated some activity in the railroad stocks.

A temporary flurry in call money in the early part of the week was wholly transitory in character but the financial district is prepared to offset the seemingly certain higher money rate, which will come with an increase in business activity by estimates of larger profits on the volume of business transacted.

H. H. S.

Machine Tool Builders to Convene in Capital

CINCINNATI, OHIO, July 16—Official notices have gone out from headquarters here to members of the National Machine Tool Builders' Association in regard to the 24th annual convention of the Association, which will be held in Washington, D. C., early in the Fall.

The program, as outlined by General Manager Ernest F. DuBrul, will include sessions at the new home of the Chamber of Commerce of the United States, with at least one session at the U. S. Department of Commerce Building. Arrangements are also being made for a visit to the U. S. Bureau of Standards. Convention headquarters will be maintained in the U. S. Chamber of Commerce Building.

Ford Purchases Georgia Land for Rubber Growth

JACKSONVILLE, FLA., July 15—Ford Motor Co. has bought 9½ acres from the City of Jacksonville for $114,000. The property is immediately south of the present Ford plant.

Ford has bought 8700 acres near Fort Myers where he is experimenting with rubber trees, and he has bought 15000 acres on the Ogeechee River near Savannah.

G. M. UNIT ON 55-HOUR WEEK

BRISTOL, CONN., July 15—The New Departure Manufacturing Co., a unit of General Motors Corp., is operating on a 55-hour week plan in all departments except the coaster brake plant.

General Motors Also Has Insurance Plan

Details of New Subsidiary, in Charge of L. L. Short, to Be Announced Soon

NEW YORK, July 16—Within a week or ten days General Motors Corp. will announce the details of its new insurance plan. L. L. Short, in charge of the General Exchange Insurance Co., a subsidiary incorporated with capital of $500,000 and surplus of $1,000,000, said the project will be so far advanced by that time that the corporation will be in position to describe it in detail.

Until then nothing beyond the formal announcement is to be made public. The corporation will underwrite fire and theft insurance on financed cars through the agency of the General Exchange Insurance Co.

Not Intended as Protest

This move, it was said, is not to be construed as a protest against existing insurance companies, but merely as an additional service offered by General Motors. Only General Motors cars, of course, will be handled. It is anticipated that the method will reduce insurance costs, which will benefit the car buyer in his turn.

That the plan is certain to have a large affect on the insurance business is indicated by the fact that cars of General Motors make constitute a considerable proportion of the automobile insurance business.

Chrysler Insurance Test Case Expected in New York

(*Continued from page* 110)

Officials of the Chrysler Corp. contend that their agents are selling automobiles with insurance as an accessory, the same as headlights, bumpers and other equipment.

According to Mr. Beha, the Chrysler Corp. has entered into contracts with the Palmetto Fire Insurance Co., and the Commercial Credit Co., Baltimore, a financing corporation, which is affected to the extent of its interest in cars sold on the installment plan and insured by the Palmetto.

Mr. Beha said the effect of these contracts is to permit the sale of Chrysler cars at a fixed price, which includes fire and theft insurance for one year, with no specific mention of the insurance cost, which is fixed at a flat rate throughout the United States.

NO PACKARD PRICE CUT PROPOSED

DETROIT, July 16—Alvan Macauley, president, Packard Motor Car Co., when asked about rumors that Packard would cut the six $500 and the eight $900, said: "There is not a word of truth in it."

Dodge Sales Establish Record at $117,045,569

Nash, Hupp, Chrysler and Others Report Notable Business Progress

DETROIT, July 16—Dodge Bros., Inc., established a new high record for the first half of 1925 with net sales amounting to $117,045,569. Net earnings after depreciation, but before deducting debenture interest and federal income taxes, were $16,487,891.

This is better than $2,000,000 over the estimates made earlier in the year for the first six months. Preference dividends were earned four times over and after deducting all charges, taxes, bond interest and preference dividends, the company earned at the rate of $9.48 on its 2,000,000 shares of outstanding common stock annually.

A statement of earnings sent to stockholders by Frederick J. Haynes, president, was accompanied by the company's initial dividend check on its seven per cent preference stock. This dividend, which inaugurates quarterly payments on the stock, amounted to $1.75 per share, payable on July 15 to stockholders as of record July.

"The half year just completed has, in every respect, been the largest in our history and earnings since the acquisition of the properties on May 1 have been very satisfactory," said Mr. Haynes. "The company is now revising its facilities to enable it to substantially enlarge its output, particularly of closed models."

Nash Income for Three Months Totals $4,193,850

KENOSHA, WIS., July 14—Nash Motors Co. reported that net income for the three months ended May 31, after deducting expenses of manufacturing, including depreciation, selling and administrative expenses and local, State and Federal taxes, amounted to $4,193,-850.11, as compared with $1,501,000.35 for the same period a year ago.

Value of sales for the three months of this year shows an increase of 100.5 per cent over the corresponding quarter of 1924.

President C. W. Nash said he regarded prospects as very bright. He sees nothing in general conditions to warrant anxiety with reference to continued satisfactory business.

Hupp Records Highest Sales Peak in Company's History

DETROIT, July 15—Due in part to the continued large demand for the Hupmobile eight, June was the largest month in the history of the Hupp Motor Car Corp. in sales volume in dollars and the second largest in number of cars manufactured, the company has announced.

In making this record Hupmobile reports that the June shipments of eight-cylinder cars increased 77 per cent over May. More than $700,000 in unfilled orders for eight-cylinder cars were carried over from June 30, while $2,000,000 in unfilled orders for four-cylinder models were also carried over.

July 1 showed a trend toward the Hupmobile eight, when additional orders totaling upwards of $1,000,000 were received. Total shipments of all models for June exceeded those for May by 61 per cent and of June, 1924, by 92 per cent. June, 1923, was beaten by approximately 36 per cent. According to O. C. Hutchinson, general sales manager, more than 10,000 Hupp eights will have been shipped before the end of August at the present rate. The stocks of cars on hand by dealers and in transit by the end of June represented less than a three weeks' supply.

Chrysler Speeds Plants Up to 750 Cars Per Day

DETROIT, July 10—With upward of 40,000 orders on their books as of July 10, for Chrysler sixes and fours, production at the two Chrysler plants here have been speeded up to 750 cars a day.

Of this number 500 are of the different Chrysler four models and 250 of the different six offerings. According to J. E. Fields, vice-president in charge of sales, plans have been made to produce 16,000 cars during July.

To maintain this rate of production, several hundred thousand dollars worth of the latest and improved machinery has been installed. Other improvements tending to speed up the output have also been installed.

Inability to secure bodies for closed cars has proved the biggest setback so far. Dealers who could sell as many as 100 cars in a few days have been able to get but one-tenth of this number. The increased production is expected to do away with this difficulty.

Hudson-Essex Sales Show Gain in Detroit

DETROIT, July 14—With business 90 per cent greater for the first six months of the present year as compared to the same period for 1924, Hudson-Essex dealers for Detroit and Wayne county predict that the sales mark for the present six months will show an even larger volume.

Reports being received at the factory here indicate that this condition is the same throughout the country. The closed cars still continue to be about 90 per cent of the total output.

Marmon Sales for Month Double June, 1924, Record

INDIANAPOLIS, July 14 — Final check-up by Nordyke & Marmon Co. sales department shows that retail sales reported for June more than doubled sales in June, 1924. Fifteen per cent more Marmons were sold and delivered than in May, and summer sales have been in excess of factory shipments in spite of the fact that shipments for June were three times as large as those of June, last year.

Unfilled orders on hand July 1 will keep the plant at capacity during July, while for some models there are sufficient unfilled orders to assure production all summer. These records show that prospects for late summer Marmon sales and production were never better, and that the next quarter may equal the pace established during the first six months when total business exceeded the total 1924 volume.

Bosch Magneto Averages $1,225,000 Sales a Month

BOSTON, July 14—American Bosch Magneto Corp. is now operating on a larger scale than ever, with 3500 employed, in its three plants in Springfield, Cambridge and Amesbury, according to President Murray. More than 85 per cent of the company's present business is of a new type, developed since the purchase of the plant in Springfield in 1919.

"Magneto production represents only 15 per cent of our business. Sales have averaged $1,250,000 a month since January, and releases for July, August and September continue at the same level," Mr. Murray said.

In addition to its general line of automotive accessories, the corporation will put on the market next month a complete six-bulb radio set of original design, with several novel features. The loud speaker will be unlike any tone amplifiers yet produced in this country, having a diaphragm of laminated wood made in Japan.

DUESENBERG SALES GAINING

INDIANAPOLIS, July 15—Fred. S. Duesenberg, president of Duesenberg Motors Corp., reports that Duesenberg sales and distribution records are on a strong upward trend, with a number of new distributors and dealers to be announced shortly. Many applications have been received since the De Paolo Duesenberg won the annual 500 mile race. One phase of the new business is the large demand for open sport and roadster models.

FISK SALES NEARLY $44,000,000

NEW YORK, July 15—The Fisk Tire Co. reports sales of nearly $44,000,000 for the first eight months of their fiscal year, against a total of $52,946,532 for the year ending Oct. 31, 1924.

DENY REPORT ABOUT SPEED

PROVIDENCE, R. I., July 15—Providence police officials deny the report broadcasted through the newspapers that motorists traveling under 35 miles an hour might be subject to discipline for holding up traffic.

Report G. M. Seeks Mack Trucks Denied

Rumor Deal with Hertz Has Further Objective Is Called Groundless

NEW YORK, July 16—The plan by which, when approved by Yellow Cab stockholders, the truck division of the General Motors Corp. will be transferred to the Yellow Cab Manufacturing Co., in exchange for which General Motors will receive controlling interest in the Hertz company, has given rise to a report in Wall Street that this deal is merely a step on the part of General Motors toward the acquisition of Mack Trucks, Inc.

At the offices of General Motors Corp. it was stated that this report was not founded on fact. The report pointed out that earlier in the year representatives of General Motors and Mack Trucks held several meetings in an attempt to formulate plans for consolidation, but that these negotiations were abandoned. On behalf of General Motors it was said that there is "nothing to" the rumor that General Motors would ultimately sever its connections with the Yellow Cab Manufacturing Co. in favor of acquiring Mack Trucks.

Strengthens Place in Bus Field

At present the position of General Motors in the truck field does not compare in strength and importance with its position in the passenger car field. But the merger with the Yellow Cab interests is expected to make it possible for General Motors to rival the leaders in the truck and bus field in both size and earning power.

Before the merger plan becomes effective it must be approved not only by the Yellow Cab stockholders but also by an audit committee. In any case, therefore, the merger cannot become actual for several months.

The plan does not contemplate any change, at present, in the wholesale or retail merchandising arrangements of the Yellow Cab company, and plant locations will remain as they are.

Hertz Sees Large Future

John Hertz, president of the Yellow Cab Manufacturing Co., believes that the time is near when a railroad ticket will include taxicab or motor coach transportation on either end of the passenger's journey, and when railroad bills of lading will include motor pick-up service and delivery as well as transportation from one place to another.

"Railroad companies," he says, "must necessarily avail themselves of such vehicles as ours in order to carry out a complete plan of transportation."

Mr. Hertz feels that the bus and truck end of the automotive industry is on the brink of a great evolution, with both filling increasingly important places in the general scheme of things.

Personnel Largely Unchanged

The merger, according to Mr. Hertz, not only will give the Yellow interests the manufacture of a comprehensive line of commercial vehicles, but also enable them to incorporate in the design and construction of their trucks many of the operating and manufacturing refinements to be found in the construction of Yellow motor coaches and taxicabs.

The operation and manufacturing organization of General Motors truck division, after transfer to the Yellow interests, will remain practically in its entirety, with Otto E. Stoll, vice president and manager of the new Yellow Coach and Truck Manufacturing Co., as manager of the Pontiac truck plant and the Detroit engine plant.

Production Increase Is Seen

From Moline, Ill., comes the report that the Yellow Sleeve Valve Engine works expects its production to be doubled by the merger. This plant is a subsidiary of the Yellow Cab Manufacturing Co. Louis Ruthenberg, general manager, points out that the plant now employs 300 men, the principal production being motors for buses and taxicabs for the Yellow Cab Manufacturing Co.

"There is every reason to believe," he said, "that the merger will strengthen the position of our company and ensure increased production. We are now turning out 300 motors each month and this may be doubled by Jan. 1."

OIL FROM CRICKETS IS USED IN AIRPLANES

WASHINGTON, July 16—It appears that a very precious oil, suitable for aviation since it does not congeal even at a high altitude, can be extracted from crickets, according to consular advices to the Department of Commerce from Algiers.

Recently about 18 tons of crickets were sent to Holland from Algeria. Part of this quantity was utilized for feeding poultry and from the remainder the oil for aviation purposes was extracted and apparently has given every satisfaction.

£1,000 FOR BRITISH RACE PRIZES

LONDON, July 10 (*by mail*)—A London journal, which claims to have the largest Sunday circulation in the country, has put up a sum of £1,000, to be won on the speedway at Brooklands in August. The first prize will be a gold trophy, value £250, together with cash of an equal value.

This competition has been inaugurated with a view to standardizing and improving production methods, and giving the public more value for its money.

England Launches New Air Mail Service

Line to Run to Russia, Finland, Lithuania, Lettonia and Memel

LONDON, July 15—Practically simultaneous with the announcement of the June 9 air mail service between New York and Chicago comes an announcement by the Postmaster General of Great Britain to the effect that a new air mail service has been put in operation connecting England with Russia, Finland, Esthonia, Lettonia, Lithuania and Memel territory.

The mails will be closed at the general post office London at 6:15 a. m. each week day for conveyance by air to Berlin and then by night train to Konigsberg, in time to connect with air services next morning to Memel, Riga, Reval, Helsingfors, Smolensk and Moscow. The total time of transit from London to Helsingfors or Moscow should be slightly under 36 hours. By ordinary mail the time of transit to these cities from London is about four and a half days. The special fee additional to ordinary foreign postage will be 16 cents per ounce on letters, etc., for Russia, and 12 cents per ounce on those for Finland and the other Baltic countries.

Lajous Manager of Ford Mexican Branch

MEXICO CITY, July 16—A. R. Lajous, formerly manager of the Ford Motor Co. at Havana, Cuba, is manager of the new branch office of that company which was opened here July 1.

When President Calles learned that the Ford company was seeking a location here he showed his personal interest and gave official aid in carrying out the plans.

Sale of Ford products in Mexico is constantly mounting and new agencies are being established even in many smaller towns, which until recently were believed to have but little market for automobiles. There are now about fifty Ford dealers in Mexico. Prior to the opening of the branch here the Mexican business was handled by the Houston office of the company.

The staff of the branch will consist of W. W. Townsend, manager of the wholesale department; O. C. Schulz, chief traveling salesman, and J. C. Weller, manager of the Lincoln department.

DIANA HAS 1500 ORDERS

ST. LOUIS, July 14—Frederick H. Rengers, vice-president and general manager of Diana Motors Co., announces that 1500 unfilled orders are on hand with demand increasing for the new Diana eight.

Rigid Traffic Law Enforcement Sought

National Conference on Street and Highway Safety Takes Concerted Action

ATLANTIC CITY, July 14—Substantial progress toward unified action in the enforcement of motor vehicle laws throughout the country with a view to reducing the number of street and highway accidents was made at the meeting of the Committee on Enforcement of the National Conference on Street and Highway Safety of the Department of Commerce held here yesterday and today. W. E. Metzger of the N. A. C. C. presided in the absence of the chairman, William McAdoo, Chief Magistrate of New York City.

The three sub-committees on Organization and Administration of Enforcement, Penalties and Existing Practices and Cooperation in Enforcement met on Monday and completed reports which were presented at the meeting of the committee as a whole today.

Will Report This Autumn

These sub-committee reports will be embodied in a report to the conference in the fall. This particular committee deals only with the problem of securing consistent enforcement of existing laws and makes recommendations for uniform and adequate penalties for violations. The importance of rigid enforcement with substantial penalties as a practical means of reducing accidents will be emphasized by this report. For such offences as reckless driving, including operation of cars at speed not reasonable and safe under existing conditions and for driving while intoxicated, extremely severe penalties are recommended.

Members of Committee

The members of the Committee on Enforcement are: William McAdoo, Chief City Magistrate, New York City; H. A. Adams, assistant to general manager, Union Pacific Railroad; Fred W. Baer, president, International Association of Fire Fighters; F. Highland Burns, president, Maryland Casualty Company; Julian Chase, directing editor, Class Journal Co.; Robert W. Childs, Chicago, Ill.; W. M. Colladay, superintendent, Iowa Motor Vehicle Department; Judge Clifford B. Davis, Memphis, Tenn.; W. L. Dill, Commissioner of Motor Vehicles of New Jersey; Thomas Fitzgerald, general manager, Pittsburgh Railways Company; A. B. Fletcher, Bureau of Public Roads; Judge Levi Hall, Minneapolis, Minn.; Michael T. Hanrahan, American Railway Express Company; Charles A. Hartnett, Commissioner of Motor Vehicles of New York; Charles M. Hayes, president, Chicago Motor Club; S. R. Heller, Yellow Cab Company, Norfolk, Va.; Judge Fred B. House, New York City; Gertrude Lane, New York City; William E. Metzger, National Automobile Chamber of Commerce; W. W. Miller, manager, Illinois Automobile Department; William B. Mills, superintendent of police, Philadelphia; Arthur T. Morey, general manager, Commonwealth Steel Company; Judge Gus A. Schuldt, Washington, D. C.; R. B. Spindle, Jr., police justice, Norfolk, Va., and C. W. Stocks, editor, *Bus Transportation*.

Ford Gets $10.50 from Soft Coal Costing $5.00

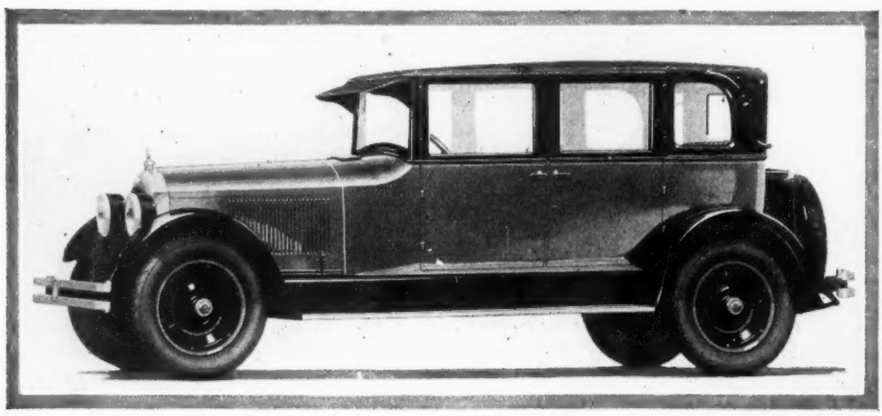
DETROIT, July 13—By a new process of low carbonization for distilling soft coal, perfected by Piron, a Belgian inventor, Ford Motor Co. has produced by-products worth approximately $10.50 from a ton of soft coal costing $5.

Ford engineers say the new process will produce by-products as follows:

5000 cu. ft. of gas @ 25c. per M....	$1.25
25 gal. of tar @ .06c. per gal.....	1.50
15 lb. ammonium sulphate @ 03c. per lb.	.45
5 gals. of motor fuel @ 30c. a gal....	1.50
¾ ton coke	5.80
	$10.50

Ford has constructed a plant at Huntington, W. Va., in collaboration with Piron. Adequate coke ovens will be installed at River Rouge, where soft coal will be distilled on a large scale. It is understood that Ford will restrict his activities to obtaining by-products suitable for use in his manufacturing.

Paige Offers New De Luxe Sedan



Five-passenger model listed at $2,395

Exporters to Orient Warned About Drafts

Department of Commerce Issues Instructions on Far East Financial Papers

WASHINGTON, July 16—Automotive exporters to the Far East are warned by the Department of Commerce to pay particular attention to forms of financial documents most suitable for use in these countries if a draft is protested at the time of collection. The Department points out "hard facts of business have replaced the sense of romance which formerly tinged trade relations between the United States and such lands of the Far East as Japan, Dutch East Indies, and the South Sea Islands, necessitating an understanding of the use of the commercial paper that enters into many trade transactions."

To aid exports to the Far East the Department has released a report entitled "Protesting Drafts in Japan, Dutch East Indies, Samoa and Tahiti," which can be secured for ten cents upon application to the Superintendent of Documents, Government Printing Office, or any district office of the Bureau of Foreign and Domestic Commerce.

The pamphlet shows that a slight error or omission in procedure may prejudice the rights of the parties to a draft beyond recovery, or that shippers may find that they have taken upon themselves unexpected expenses and legal liabilities in connection with drafts they have drawn.

Fix October 8-10 as Date for Pulitzer Air Races

NEW YORK, July 15—E. O. McDonnell, president of the New York 1925 Air Races, Inc., has announced that the national air races will be held at Mitchell Field, L. I., Oct. 8, 9 and 10. The Pulitzer Trophy race will be the last day's feature event.

Army air forces will participate, and Major General Summerall, commanding the Second Corps area, has pledged his cooperation. The present speed record for the Pulitzer Trophy is 243 miles an hour, but it is expected this will be bettered by more than 20 miles an hour by three planes being built by the Curtiss Co. On a straight course they may travel 300 miles an hour.

ALFRED REEVES TO LECTURE

NEW YORK July 15—Alfred Reeves, general manager, National Automobile Chamber of Commerce, will deliver two lectures on "Organization" at Northwestern University, Evanston, Ill., next week, in connection with the Fifth Annual Session of the National School for Commercial and Trade Executives of the United States Chamber of Commerce.

Ford Steering Gear Improved by Change

New Transmission Allows Transfer of Bands Without Removing Cover

DETROIT, July 14—New type transmission bands, simplifying replacements and steering gears of 5 to 1 ratio, making for easier steering, are now fitted on Ford cars and trucks. All dealers throughout the country are supplied with the new parts to give immediate service.

It is no longer necessary to remove the transmission cover to change the new type of bands. A detachable ear on one side allows the bands to be withdrawn and replaced through the transmission cover door. The ear is held in place by studs in the ear slots, the shoulder of the ear snapping over the end of the brake band, thus holding it securely in place.

How the Gear Is Removed

To remove the gear it is only necessary to insert a tool which is made by bending over the end of a screwdriver one-quarter of an inch, through the end of the ear into the square hole in the end of the brake band, lifting up on the tool and forcing the band down and the ear back. After the nuts, washers and springs have been removed from the pedal shafts, the reverse and brake pedals are pulled out as far as possible, removing the ears as explained. The beads then may be withdrawn from the right side, permitting them to follow close to the cover to prevent their distortion.

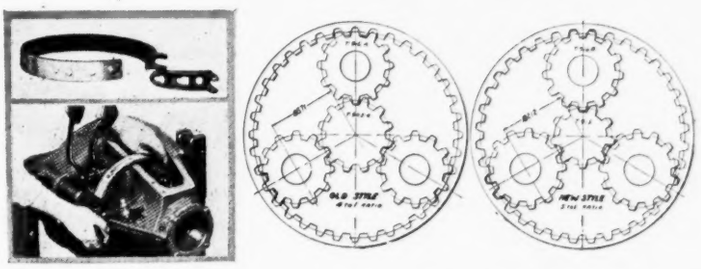
Where a car is equipped with the old type of bands, the transmission cover must be removed. The slow speed shaft must be cut off about ⅞ of an inch from the shoulder and the new type slow speed adjusting screw installed.

New Steering Wheel

Steering gears of 5 to 1 ratio, originally installed only in cars equipped with balloon tires, now are being used on all cars regardless of tire equipment. A new steering wheel, 17 inches in diameter, is used with the improved steering gears, which, together with the increased ratio, adds materially to steering control.

The gears used in the new 5 to 1 steering arrangement are not interchangeable with the old 4 to 1 type and it is important that mechanics understand the difference in the gears of the two ratios to prevent accidents due to locking.

Use of side bolts and blocks for the crankcase arms on the trucks has been discontinued. This allows the mounting of the engine to be somewhat more flexible and reduces the possibility of cracking the crankcase arms.



Left—New detachable ear transmission bands adopted by Ford and method of installing them. Right—The old and the new Ford steering gear, the latter having a 5 to 1 ratio

Seasonal Shutdown at Ford Motor Co. Begins

DETROIT, July 15—Beginning today and continuing one month, the Ford Motor Co. undergoes its annual summer shutdown for inventory and replacement of equipment. One department will be prepared to close as another prepares to open. In this way normal production will be maintained as nearly as possible. In no case will any department be closed for more than two weeks.

It is understood that the shutdown is the forerunner of changing over the Ford plant in preparation for the new models. It is expected that the changes will affect the appearance of the car primarily, although no official statement about the new models has been made by the company.

Jordan Records Second Largest Quarter in History

CLEVELAND, O., July 16—The Jordan Motor Car Co. has just finished the second largest quarter in its history from the standpoint of volume.

With the Jordan Line Eight selling in the $3,000 class, number of cars delivered was approximately the same as in the corresponding quarter last year, when Jordan was building sixes priced around $2,300.

Earnings for the second quarter, $228,575.80, covered dividends more than twice over. With no bank obligations and no other indebtedness and all current bills paid, Jordan has $1,604,710.01 in cash and securities. Quick assets as of June 30th totalled $2,526,897.71 and liabilities $590,945.15.

Expect Record Sales as New Models Appear

Orders Already Placed Indicate Best Six Months in Industry's Annals

DETROIT, July 15—With but a short time left before the introduction of new models, those in close touch with the automotive industry in this area are expecting them to give greater impetus to sales and to make the present six months the best in the history of the industry.

This is borne out in the number of orders that have been placed for the new models and also the new passenger cars that have been introduced in the past month. Ajax, Diana, and the Chrysler four, the new passenger cars to be offered the public, have met with an unusually large number of sales and orders.

With the coming of the new models, the field is being divided into two classes, one that favors new models and those who believe in periodical changes. The action of Studebaker in announcing no yearly models has added another line to those who have discontinued yearly models.

Cyclo Gas Is Said to Give Greater Mileage

DETROIT, July 13 — Cyclo gas, a petroleum product for which it is claimed that it gives more power and mileage and also that it eliminates the fuel knock, will be widely distributed from now on, according to a statement issued by the Great Lakes Refining Co. of this city. It is produced from crude oil by a new refining process.

The distilling process employed was discovered three years ago by Dr. Alex S. Ramage of the Chemical Research Syndicate of Detroit. The product has been for sale for some time in Detroit, Cleveland and Toledo, but public announcement was held back until the refinery at Dayton, Ohio, could be enlarged to a point where it would have sufficient capacity to meet the expected demand.

Detroit Reports 4,478 Overland-Knight Sales

DETROIT, July 15—Willys-Overland dealers in Detroit territory sold 4,478 Willys-Overland and Willys-Knight passenger cars during the six months just ended, these figures including sales registered in Detroit and Wayne County.

During 1925 approximately 5,555 passenger cars of the above make were sold in this territory, 1,077 more than were sold during the past six months. Orders already booked and prospects assured make it seem likely that the sales in this territory for the year will establish a new high sales mark.

See Another Rise in Tire and Tube Prices

Crude Rubber Still High as Manufacturers Start Conservation Plan

AKRON, OHIO, July 15—Another advance in automobile tire and tube prices undoubtedly will be made by the end of the month, in the opinion of authorities in the industry, as a result of a further extended rise in the crude rubber market within the past few weeks.

When tires were increased July 1 crude rubber was selling around 80 cents a pound. In two weeks the raw material had jumped 25 cents to $1.06 a pound, marking the largest advance ever recorded in so short a space of time.

Despite measures adopted by the manufacturers for curtailing production of tires, rubber brokers here see no immediate relief from the "rubber squeeze." It has tightened after every increase in tire prices so far, and stocks in the London market have been reduced to a minimum.

Large Contracts for Futures

Although there has been comparatively little buying of spot rubber at these prices by the big manufacturers, it is learned that large contracts have recently been placed for future deliveries as far ahead as July, 1926.

An additional release of 10 per cent in rubber output from plantations in British possessions will be allowed Aug. 1, bringing exports up to 75 per cent of production. This is provided for in the Stevenson restriction act, which allows an increase of 10 per cent each quarter, as long as the average price for the quarter remains above 35 cents a pound.

Britain Sees No Need to Restrict Malay Output

LONDON, July 11—Despite the fact that crude rubber is four times what it was in the spring of 1924, the British government is not inclined to consider that it justifies reconsideration of the existing ordinance restricting the output of the Malay Peninsula.

W. G. A. Ormsby-Gore, Parliamentary Under Secretary for the Colonial office, replying to questioning in the House of Commons, said the legislation originally was drawn to restrict export, not production. Admitting that the existing price of rubber was a surprise, Ormsby-Gore said that it would bring an automatic increase in the amount of rubber for export Aug. 1.

Nevertheless, if the prevailing high price continues, the situation would be re-examined, the Under Secretary added. Legislation would be necessary in the Straits Settlement, the Federated Malay Settlements, the Federated Malay States and Ceylon to increase the percentage of Aug. 1 by 20 per cent instead of 10.

TROLLEY CARS SOLVE PROBLEM OF PARKING

POUGHKEEPSIE, N. Y., July 15—Automobile drivers who take advantage of the offer of the Poughkeepsie & Wappingers Falls Railway, not only get safe parking space, but ride downtown on trolleys without paying fare.

The company has cleared a plot of ground on the outskirts of the city which it offers to motorists for parking at the rate of 25 cents a day. They are conveyed to the downtown district on street cars without charge.

But in the evening they pay a fare to ride back. Thus congestion is relieved downtown, the motorists have good parking space, and the trolley company gets a revenue from otherwise unoccupied property.

Rubber Industry Plans Conservation Program

NEW YORK, July 16—A. L. Viles, secretary of the Rubber Association of America, has paved the way for a special sub-committee to make drastic recommendations to the industry with the idea of conserving rubber.

The committee will be appointed probably this week, as the result of a special meeting here a week ago when directors determined to abolish the "spring dating purchase plan." Under this arrangement orders for crude rubber were placed in the autumn, ordinarily in November, for delivery of rubber at the seller's option, up to March 1. In some cases settlement for the invoices was carried until June.

Elimination of this plan, Mr. Viles explained, undoubtedly will cause manufacturers to make larger use of their current stocks of rubber.

Studebaker Phaeton on Market at $1,255 List

SOUTH BEND, IND., July 13—The Standard Six line of the Studebaker Corp. now includes a sport phaeton listing at $1,255 and a sport roadster listing at $1,235. Both models are finished in a dark gray lacquer and have leather upholstery. The equipment of these new models is identical with the Duplex roadster and Duplex phaeton, but in addition they are furnished with a spare tire, a front bumper and a motometer.

MICHAEL J. KEANE DIES

WASHINGTON, July 13—Michael J. Keane, a prominent attorney and at one time president of the Oldsmobile Co. of Washington, died here suddenly this week in his fifty-third year.

Organize to Abolish Motor Excise Taxes

Leaders of Various Interested Groups Ready to Support Representative Sosnowski

NEW YORK, July 15—With Representative J. B. Sosnowski of Detroit planning to present to the House Ways and Means Committee early in the fall the arguments for reduction or elimination of the automobile excise taxes, leaders of various divisions of the automotive industry are promoting plans for an organized effort to do away with the burden imposed by these taxes.

After conferring with representatives of car manufacturers, Representative Sosnowski announced that he will consult with colleagues in the House during the next two months to obtain concerted action on this subject and with the chief object of obtaining from the Ways and Means Committee a favorable recommendation.

Plan to Hold Meetings

Representatives of various divisions of the industry, meeting at the offices of the National Automobile Chamber of Commerce, pledged themselves to use their influence through all known points of contact to secure abolition of the taxes.

Motor clubs and associations generally will inform their Congressmen and public officials of their views, and meetings will be held to acquaint the general public with the situation.

Called "Costly Annoyance"

Alfred Viles, general manager of the Rubber Association of America, said the administration of the tax on parts was a costly annoyance, and H. H. Rice, chairman of the N. A. C. C. taxation committee, said the reduction or elimination of the car tax would be passed on to the consumer in reduction of car prices.

Neal G. Adair spoke for the Motor and Accessory Manufacturers Association; C. B. Warren, president of the Warren-Nash Co., for the National Automobile Dealers Association; Thomas Henry, president, and Ernest H. Smith, manager of the American Automobile Association, for the motoring public, and Alfred Reeves, general manager of the N. A. C. C., expressed the views of the National Association of Taxicab Owners.

STANLEY CAR PLANT SOLD

BOSTON, July 16—The Steam Motor Vehicle Co. of America, owner of the plant of the old Stanley Motor Car Co., and which bought out the Stanleys some years ago, has sold the factory property in Watertown to the Bacharach Studios. The company will move somewhere in the West.

Fewer Steel Bargains as Prices Harden

Good Automotive Demand Tends to Sustain Rates All Along Line

NEW YORK, July 16—Bargains in the steel market are fewer than a fortnight ago. There has been more or less of a hardening of prices all along the line. Cold-rolled strip steel appears to have been chosen as the leader in mills' efforts to halt further sagging of prices.

Cold-rolled strip steel could be bought a fortnight ago at 3.50c., Pittsburgh. Today 3.75c. is considered the inside price, with the restoration of the full 4c. level predicted in the very near future. While good automotive demand has sustained this hardening of the cold-rolled price, hot-rolled flats at unchanged but firm levels have been in greater inquiry.

Further Hardening Expected

Black and blue annealed sheets also have lost their price flexibility of a few weeks ago, and going prices are at least $2 a ton above those in vogue late in June. Further hardening of prices is freely predicted by sales managers. Full-finished automobile sheets seem to be held firm 4.25c., Pittsburgh. Amid this change of the finished steel market's face, it is only natural that the semi-finished market, which had begun to wobble, should resist attempts at lower prices, and sheet bars are once more quoted at the pegged price of $35.

July Better Than Usual

With the feeling that the United States Steel Corporation's unfilled tonnage statement for June, revealing a further drop of 339,342 tons in its backlog, winds up the budget of bad news, the steel industry seems to be unanimous in the opinion today that the corner has been turned, and July, usually considered an off month in the steel business, has so far given a very good account of itself. Of course, the time had to come when consumers in other than the automotive industries would once more enter the market, and this time seems at hand.

Production Is Scaled Down

Conditions are by no means favorable to sharp price advances, but they do appear to favor a gradual return to the price levels which prevailed before the market began to sag all around, this all the more so as rate of production has been scaled down to a point where even moderately increased demand is certain to make itself emphatically felt.

Pig Iron.—While the market on the whole is very quiet, a certain amount of routine buying by automotive foundries is in evidence, and blast furnace interests are greatly cheered by the better complexion of the steel market, a condition which they consider as a forerunner of greater activity in foundries.

Aluminum.—Exports of aluminum ingots to Germany, noted a few days ago, show the artificial character of the world market. If Germany's home production does not suffice, Switzerland and Norway are at her front door, so that "joy rides" of aluminum across the Atlantic indicate speculative manipulation. The domestic market remains pegged at unchanged price levels.

Copper.—After attaining the 14c. level, the market turned quiet. Automotive copper and brass products have been in good demand of late, and Waterbury district mills have booked good-sized orders.

Tin.—Prices are holding around 57c., and the market's undertone is strong.

Lead.—With the market in a more settled condition, storage battery interests are buying in a routine way.

Zinc.—Following some good buying, demand slowed down. On the whole the market is firm.

Automobile Makers Are Buying for New Models

PITTSBURGH, July 15—In reports issued today mills called attention to the fact that sheet buying last week was normal, and they pointed to telegraphic orders from automobile manufacturers for sizes needed in new models and replenishments in general stocks.

The price of 4.25c. on automobile sheets was declared by mill officials to be so firm that the producers could advance the market quotation if they desired, since the buyers were apparently not interested in price. While steel company officials here were aware of the fact that a let-down in production of automobiles is to be expected from the present high rate, they declare the business from the automobile companies is continuing constant.

Their advices indicate that many of the big companies have extensive orders on hand.

Gardner Cabriolet Now on Six-Cylinder Chassis

ST. LOUIS, July 15—The foursome cabriolet model recently added to the Gardner eight-cylinder line is now being offered on the six-cylinder chassis also. The new model lists at $1,845, which includes five disk wheels, front and rear bumpers, shock absorbers all around and five 5.25 in. balloon tires. In appearance and construction the new six-cylinder model is similar to the eight-cylinder foursome cabriolet described in AUTOMOTIVE INDUSTRIES of July 2.

U. S. ARMATURE SERVICE MOVES

CHICAGO, July 15—The U. S. Armature Service, rewinder of armatures for the automobile trade, has moved into larger quarters at 11-17 South Desplaines Street, where facilities are greater in all departments.

New German Tariff Affects U. S. Motors

American Competition Pins Hopes in Treaty Still Awaiting Ratification

BERLIN, July 10 (*by mail*)—Higher tariff rates proposed in Germany, it is believed, are likely to cause American automobile manufacturers considerable difficulty in meeting competition. The new minor tariff rate probably will go into effect in September.

According to a careful calculation, the duty will affect American cars as follows:

A medium quality car in New York costs	$1,000
Freight, packing, insurance, charges to Hamburg	400
Unpacking and charges in Hamburg.	100
Approximate cost of landing in Hamburg	$1,500
Present duty of 80 marks per 100 kilos; average weight, 1,400 kilos, 1120 marks	310
Duty on tires (180 marks)	44
Total (not including 10 per cent luxury tax)	$1,854

Additional Charges

Under the new tariff (250 marks per 100 kilos) the same car would cost $1,000 in New York, with these additional charges:

Expenses in transit	$500
Duty 3500 marks	853
Duty on tires (180 marks)	44
Total cost at Hamburg, not including 10 per cent luxury tax	$2,397

American hopes are centering in the inevitable treaty between France and Germany. The United States, it is believed, should be able to negotiate for tariff rates equal to those of France, through the "most favored nation" treaty now awaiting ratification by Germany.

Germany May Increase Import License Permits

NEW YORK, July 16—Extension of American automobile permits into Germany from 4 to 13 per factory per month may be authorized in the immediate future, according to George F. Bauer, foreign trade secretary of the National Automobile Chamber of Commerce, who is now abroad.

Mr. Bauer, reporting to New York officials of the N. A. C. C. on the results of his conferences with Berlin authorities, based his prediction in part on the fact that Austria already is on the 13 per month basis.

During his investigation abroad, Mr. Bauer has conferred on this and kindred problems with factory representatives from all of the principal countries on the continent. The American commercial attaches Miller and Hildesheimar, have given active cooperation.

Trailer Association Seeks Cooperation

Views of Truck and Tractor Leaders on Better Team Work Are Sought

NEW YORK, July 15—In accordance with a policy proposed at a recent meeting of the Trailer Manufacturers Association in Detroit, A. P. Ames, manager, is ascertaining the views of leaders in the truck and tractor business regarding better team work by the truck, tractor and trailer industries.

The basis of the proposed cooperation is the growing belief in the automotive industry that the manufacturer's first duty in dealing with users is to "sell service."

Planning a trailer installation without proper consideration of hauling equipment is regarded as just as shortsighted as purchasing trucks and trailers without first considering how many and what types of trailer can best be used to supplement motive power.

In publishing facts and figures of trailer economies hereafter, the association will pay more attention to complete installations and to the automotive end of trailer combinations. At the same time the association purposes to furnish general information for the use of truck and tractor salesmen interested in emphasizing the performances of their machines with trailers attached.

New Baltimore Course Ranks High for Speed

BALTIMORE, MD., July 15—With more than 50,000 spectators present, the new Baltimore-Washington Speedway, near Laurel, Md., was opened last Saturday with sixteen speed demons taking part in the 250-mile inaugural race. The opening of the speedway has created no end of interest in the trade as well as with the public in general. The track is said by some of those connected with the race staged on the opening day to be the fastest in the world. Plans are under way to stage additional races in October.

Peter de Paolo was declared the winner of the race following a check-up. It was first announced that the honor had gone to "Bob" McDonogh. It was claimed that a mistake in timing had been responsible for the error.

De Paolo's time was announced as 2 hours, 1 minute and 37 seconds, and that of McDonogh 2 hours, 1 minute and 59.28 seconds. De Paolo maintained an average speed of 123.33 miles per hour, said to have been a record on any speedway without the use of disc wheels.

The veteran Ralph de Palma was forced out in the last laps, when his car skidded and turned turtle twice. He was only slightly injured. Frank Elliott also missed death by inches when he skidded.

Business in Brief

Written exclusively for AUTOMOTIVE INDUSTRIES *by the Guaranty Trust Co., second largest bank in America.*

NEW YORK, July 15.—Despite the mid-summer dullness in many lines of business activity, the main features of current reports have been distinctly encouraging. It is becoming more apparent that industrial activity in June was greater than was gnerally believed. Both stock and commodity prices tended upward last week. Trade in seasonal goods continued large.

Among the favorable features of industrial and trade activity last month were increases over May in sales of mail order houses, customs receipts, bank clearings, wool receipts, deliveries of tin and shipments of new locomotives, and a decrease in the number of business failures.

A further decline in the output of steel ingots last month brought the estimated total to 3,207,056 tons, as compared with 3,458,253 tons in May and 2,065,676 in June last year. The daily average of 123,348 tons compares with 133,010 in May and 82,627 a year earlier. Unfilled orders reported by the United States Steel Corporation declined from 4,049,800 tons on May 31 to 3,710,458 on June 30, comparing with 3,262,505 at the end of June last year.

Car loadings in the week ended July 4 numbered 864,452, as against 757,904 in the corresponding period a year ago. Loadings in the first six months of 1925 set a new high record, 5.1 per cent larger than that of last year and 1.2 per cent above the previous record of 1923.

The official July report forecasts a corn crop of 3,095,000,000 bushels, the third largest in the country's history. A material improvement is shown in the condition of spring wheat as compared with a month ago, while the condition of other crops reflects generally favorable progress.

Building contracts awarded in June in thirty-six states, as reported by the F. W. Dodge Corporation, represented a total value of $540,609,600, only 7 per cent below the record figure for April, and 40 per cent larger than the total for June, 1924.

Fisher's index of wholesale commodity prices stood at 159.3 last week, as compared with 158.9 a week earlier and 159.5 two weeks earlier. A general advance in retail food prices between May 15 and June 15 is shown in the latest survey of twenty-three cities by the Department of Labor.

Earnings assets of the Federal Reserve banks declined $84,300,000 during the week ended July 8, with decreases of $61,300,000 in discounts, $8,400,000 in open market purchases and $14,600,000 in U. S. securities.

FINANCIAL NOTES

Goodyear Tire and Rubber Co. of Canada, Ltd., has declared 1¾ per cent additional on the deferred dividends on the preferred. This is in addition to the regular quarterly dividends on the prior preferences and preferred stock and brings arrears down to 5½ per cent. C. H. Carlisle, vice-president and general manager, sent the following statement with dividend checks to shareholders:

"Prices remain exceptionally low in all lines of our products. Both plants are at their maximum production. Our output for the nine months of our fiscal year has been the greatest in the history of the company. Our net profits for the nine months exceed those for the same period a year ago."

Gillette Tire & Rubber Co. of Eau Claire, Wis., has filed amendment to the articles of incorporation changing the name of the organization to the Gillette Rubber Co., increasing the capital stock and adding two directors. The capital stock is increased and changed from 500 shares no par value, to 50,000 shares of preferred at $15 par and 100,000 shares of common at $5.40 par, making an aggregate capitalization of $1,290,000. Charles H. Chapman is president and J. Sheahan is secretary.

The Consolidated Stock Exchange has received an application to list 50,000 shares of the Audet Manufacturing Corp. stock. The corporation was organized to acquire the Audet Novelty Manufacturing Co., Inc., of Williamsport, Pa., owners of the patent rights of the National Collapsible Rim and makers of several automobile accessories. The products are sold to Ford, Maxwell, Gray and other automobile concerns.

Motor Wheel Corp. net profits for the second quarter of the year amounted to $800,000, compared to $767,366 for the first quarter. It is indicated that earnings for the half year will be about $3 a share on 550,000 no par shares. The next dividend, due on Sept. 20, is expected to be at the rate of 50 cents, placing the stock on an annual basis of $2 instead of $1.60 as at present.

Nash Motors Co. has declared regular semi-annual dividends of $3.50 a share on the common and an extra dividend of $6.50 a share. Six months ago the company declared an extra $2.50 on the common. The regular quarterly dividend of $1.75 a share was declared on the preferred. Dividends on both issues are payable Aug. 1 to stock of record July 20.

United States Rubber Reclaiming Co., Inc., has been admitted to unlisted trading privileges by the Committee on Listing and Securities of the New York Stock Exchange. The company lists 120,000 authorized shares of common stock, no par value, and 20,000 authorized shares 8 per cent cumulative convertible preferred stock, par value $100.

Mack Acceptance Corp., No. 25 Broadway, New York City, has been granted authorization certificate to begin business operations with a capital of $2,000,000 and a surplus of $200,000, according to the weekly bulletin of the State Banking Department.

Fageol Motors Corp. has declared its regular semi-annual dividend of 3½ per cent on preferred stock, payable on or before July 15 to stockholders of record June 30.

Motor Necessities, Inc., is the style of a new manufacturing and wholesaling firm in motor needs, formed in Milwaukee.

Men of the Industry and What They Are Doing

E. A. Callanan Resigns

E. A. Callanan has resigned as general sales manager of the Rollin Motor Car Co. and of the Cleveland Tractor Co., Cleveland. He has not yet announced his plans for the future, nor has his successor been announced. During the war he was in charge of the receiving station at the Dayton aeronautical field. At one time he held an executive position in the Overland plant at Toledo, and later was in charge of automobile distributing agencies in several of the larger cities.

Leghorn Quits Motor Business

George M. Leghorn of Boston, who was formerly owner of Leghorn Motors, distributor of Gardner cars for New England, which was recently taken over by Connell & McKone, has reconsidered his decision to handle the line at retail and has announced his retirement from the automobile business. He is liquidating his business and has given up his lease. The Connell & McKone company has decided to lease another building for Gardner distribution and will secure another retail sales manager.

McKinney Is Promoted

Harry D. McKinney has been elected second vice-president and general sales manager of the Driver-Harris Co., manufacturer of special alloys, Harrison, N. J. Mr. McKinney began with the company in 1918 as district sales manager of the New England territory. In 1920 he was transferred to the Chicago sales office as manager. Prior to his service with the Driver-Harris Co., Mr. McKinney was with the Westinghouse Electric & Manufacturing Co.

G. W. Sherin Resigns

G. W. Sherin has resigned as advertising manager of the American Bosch Magneto Corp., effective Aug. 1. No announcement has been made concerning his successor. Mr. Sherin has been advertising manager of the corporation for six years and is well known in the advertising world. He announced no plans for the future beyond his intention to enjoy an extended vacation.

Mendelssohn Is Advanced

Louis Mendelssohn has been advanced to the newly created post of chairman of the board of the Fisher Body Corp. Mr. Mendelssohn, who has been with this corporation for some time and who is well known in automotive circles, was formerly treasurer. He is succeeded by William Butler, former comptroller, who in turn is succeeded by A. Foy, now comptroller and assistant treasurer.

Brandt Is Made Manager

A. J. Brandt has been appointed works manager for the plant of the Oakland Motor Car Co., Oakland, Cal., according to announcement by A. R. Gancy, president and general manager. Brandt supervised construction of the Chevrolet plant at St. Louis, and afterwards built the Brown-Lip-Chapin factory at Syracuse, N. Y.

E. A. Callanan

Clark Elected President

George Clark, president of the Lincoln Motor Co. of Milwaukee, was elected president of the Upper Third Street Commercial Association of that city at the annual meeting held recently. Mr. Clark has been unusually active in promoting the interests of the district as a business center.

BALTIMORE TO STUDY TRAFFIC

BALTIMORE, MD., July 14—A complete traffic survey of this city is to be made in the near future. A commission has been appointed and is expected to start work immediately. The method of apportioning the cost of the survey, which is estimated at between $100,000 and $125,000, has not been determined.

Gregg Leaves McCook Field

David Gregg, an authority on superchargers, and for a long time chief of the Supercharger Branch, McCook Field, Dayton, Ohio, has left the Government air service to devote all his time to the commercial application of the supercharged induction system.

McCormish in Canada

W. E. McCormish, formerly president of the Rubber Engineering Co., Akron, has become assistant manager of the Gregory Tire and Rubber Co., Ltd., Coquitlam, B. C. Mr. McCormish sold his interests in the Rubber Engineering Co.

Roberts Personnel Director

Hubert W. Roberts, formerly vocational director of schools in Anderson, Ind., has resigned to become director of personnel at the Olds Motor Works, Lansing, under the direction of I. J. Reuter, president and general manager.

Buffalo Plant Is Active

M. E. Forbes, president of the Pierce-Arrow Motor Car Co., was a recent visitor at the Chicago branch headquarters. He said the Buffalo plant was materially increasing capacity for the 1926 output on automobiles, trucks and buses.

Bovaird Is Branch Manager

L. M. Bovaird has been appointed manager of the Detroit branch of the Lapeer Trailer Corp. He was formerly branch manager for the Mason (Flint) "Road King" in Detroit.

Participants in Russian Trials Exempt from Tax

WASHINGTON, July 14—All automobiles, trucks and motorcycles taking part in the international motor trials, to be held in the Union of Soviet Socialist Republics in 1925 will be exempt from import duty for a period of three months, according to information furnished by the London committee of the international motor trials and forwarded to the automotive division of the Department of Commerce by Trade Commissioner Park at London.

If the vehicles are sold after having taken part in the trials, the regular import duty will be collected.

GOODRICH OUTLOOK HOPEFUL

AKRON, July 15—Semi-annual statement of the B. F. Goodrich Co., to be made public soon, is expected to show earnings of more than $5 a share on common. Since profits probably will be better during the last half year, due to increased tire prices, it is predicted that total year's earnings will be close to $12 per share. Reports of good business during the last quarter have revived rumors that directors would resume payment of junior dividends at their next meeting. The management is not apt to resume common dividends at anything but a moderate regular rate, but directors are understood to be unanimous that, to make up for omission of dividends during the past three years, extras should be paid as conditions warrant.

Coming Events

SHOWS

Sept. 8-11—New Haven, Mason Laboratory, Yale University Machine Tool Exhibition, direction of Amer. Society of Mech. Eng., Chamber of Commerce and Yale Mechanical Engineering Department.

Sept. 14-19 — Cleveland, Public Auditorium, Annual Convention and Exposition, American Society for Steel Treating, W. H. Eisenman, secretary.

Sept. 21-26—London, England, Annual Cycle and Motorcycle Show under auspices of the British Cycle and Motorcycle Manufacturers and Traders Union, Ltd.

Sept. 28-Oct. 3—Chicago, Fourteenth annual Safety Congress and Exhibit, Rainbow Room, Hotel Winton, under direction of National Safety Council, A. M. Smith, business manager.

Oct. 5-9—Atlantic City, Young's Million Dollar Pier, Manufacturers' Exhibition in connection with American Electric Railway Association Convention.

Oct. 8-17—London, Olympia passenger car show.

Oct. 29-Nov. 7—London, annual truck show.

Nov. 26 - Dec. 6 — Berlin, Germany, Annual Automobile Show in the Kaiserdamm.

CONVENTIONS

Sept. 14-19 — Cleveland, Public Auditorium, Annual Convention and Exposition, American Society for Steel Treating.

Oct. 5-9—Atlantic City, Young's Million Dollar Pier. American Electric Railway Association.

Oct. 7-10—Montreal, Motor and Accessory Manufacturers Association Convention.

RACES

July 26—Paris, Montlhery Track, French Grand Prix

Sept. 7—Altoona, Pa.

Sept. 19—Syracuse, N. Y.

Sept. 30—Fresno, Cal.

Oct. 10—Baltimore-Washington Speedway, Laurel, Md.

Oct. 12—Salem, N. H.

Oct. 24—Charlotte, N. C.

Nov. 26—Los Angeles.

S.A.E. MEETINGS

National

Sept. 15-16—Cleveland, Production meeting and exhibition.

Nov. 12-13—Philadelphia, Automotive Transportation meeting.

Nov. — Service Engineering meeting.

Chevrolet Expects Sales to Exceed 1924

DETROIT, July 15—At the rate of production now being maintained by Chevrolet, total output for 1925 including Aug. 20, will exceed that for the year of 1924, R. H. Grant, general sales manager, has announced.

Chevrolet production last year was 305,303. For the first six months this year the output reached 246,081, with monthly production records for April, May and June.

Production for June amounted to 54,944, which was exceeded by only one month, October, 1923. June sales to dealers were 54,725, with 24,654 unfilled retail orders at the end of the month.

A review of May Chevrolet passenger car sales showed them to be 233.6 per cent better than those for May, 1924. Truck sales for the same period were 297.6 per cent better than for the corresponding month last year.

American Bosch Magneto in Litigation Over Rights

NEW YORK, July 15—The American Bosch Magneto Corp. has filed suit in the Supreme Court of New York State against the Robert Bosch Magneto Co. for alleged violation of the rights acquired by the former through the purchase of the latter from the Alien Property Custodian, and also for alleged infringement of the former's trade marks, trade name and good will.

The American Bosch Magneto Corp. seeks a permanent injunction restraining the Robert Bosch Magneto Co., its officers or agents, from directly or indirectly doing business in magnetos, spark plugs, electrical equipment, etc.; from using its corporate name, or the name "Bosch," or "Robert Bosch," or any of its trademarks; from selling magnetos, etc., manufactured or acquired from Robert Bosch or Robert Bosch Aktiengesellschaft of Stuttgart, Germany; and from representing that Robert Bosch Magneto Co. is the successor of the Bosch Magneto Co., or that its products are the original Bosch or Robert Bosch products.

Damages and profits alleged to have been wrongfully acquired by the Robert Bosch Magneto Co. are also sought.

Ford Starts Production in New French Factory

PARIS, July 9 (*by mail*)—French automobile makers are much concerned about the purchase and equipment by the Societe Anonyme Francaise des Automobiles Ford of a large plant near Paris for immediate production of 300 Ford cars and trucks a day. Ford, heretofore, has operated his factory at Bordeaux merely to assemble parts shipped from the United States.

French manufacturers are more concerned over Ford's plans for sales abroad than in France. Last year they shipped out 47,000 cars and trucks to foreign buyers. The figures for the first four months of 1925 indicate a total for the year in excess of 50,000. They estimate that Ford will produce about 90,000 cars a year and see in this total a plan to compete with them outside.

Citroen and Renault, makers of two popular priced French cars, are confident of their ability to compete with Ford in France.

VULCAN RUBBER RECEIVER QUITS

ERIE, PA., July 16—M. Liebel, Jr., has resigned as receiver of the Vulcan Rubber Co. because of ill health. Mr. Liebel, former congressman from this district, was one of the organizers of the company. George B. Wingerter was named by the court to succeed him. Application has been made for $100.000 worth of receiver's certificates with which to purchase stock and equipment for the manufacture of rubber battery boxes.

BRITAIN HAS NEW YORK OFFICE

NEW YORK, July 15—The British Embassy has established New York offices at 2 Rector Street, designed to promote closer commercial and financial relations between the two countries. Captain A. J. Peck, who has been stationed at the Washington office, is in charge.

New June Record for Ford Motor Co.

DETROIT, July 16—A new June sales record was established by the Ford Motor Co. last month, approximately 6000 more cars and trucks being delivered to retail customers in the United States than during the same month a year ago, which held the previous high mark for June.

Reports indicate continued large volume of business through the summer with a higher buying level than usual.

Urgent requests for additional shipments have made it necessary to increase July production schedule, which now calls for several thousand more cars and trucks than were produced in June.

Figures given out by the company show that total sales for June were 195,300 cars and trucks. Of this number, 176,256 represent domestic sales, as compared with 170,547 cars and trucks sold in June a year ago. Sales and deliveries of Lincoln cars in June were 892, an increase of 95 over June a year ago.

PROVIDES NEW JUNIOR TIMER

KOKOMO, IND., July 16—The Turner Manufacturing Co. is in production on a new model Turner Junior Timer, an all-Bakelite device listing at $1.90. The new timer embodies the same sliding-brush principle used on the Turner 2 in 1 Timer and is adaptable to Ford cars, trucks and Fordson tractors. It is also made in a special model for foreign trade, to fit either right or left-hand drive Fords.

OPEN CARS DEMAND WINGS

KOKOMO, IND., July 14—Indication of revival in open car popularity is seen in the marked increase in sales of windshield wings by the Kokomo Automotive Manufacturing Co. during the last three months. Commencing early last spring, wing sales started to increase, with the result that during June the total was the largest of any single month in the company's history.

AUTOMOTIVE INDUSTRIES
VOLUME 53 *New York, Thursday, July 23, 1925* NUMBER 4

"Keep Automobile Paper Sound," Urges Finance Association Manager

Mass production made possible by growth of time payments, but terms must be kept within reason if progress is to continue. Help of manufacturers is needed.

By C. C. Hanch,
General Manager, National Association of Finance Companies

AN important current problem of the automobile industry as a whole is to keep automobile paper sound. Fortunately, automobile merchandisers have not encouraged the practice, which has obtained in some other lines of business, of making terms of $1 down and 50 cents a week for the balance of one's life. Any tendency toward such terms would be the worst thing that could happen in the automobile business.

Where the article itself is relied upon primarily for security, the soundness of any time sale is fundamentally based upon those principles:

1. The down payment made by the purchaser must be large enough to make him feel that he has a real equity in the purchase and is not merely a renter.
2. The maximum time of deferred payments must be short enough so that the depreciation of the article will not absorb the equity of the purchaser or security of the lien holder before the last note matures.

If these principles are adhered to, automobile time sales paper always will be fundamentally sound.

While there is some difference of opinion on these points, it has been found by experience that a down payment of approximately 30 per cent and a maximum maturity of approximately twelve months is desirable. Somewhat longer time has been granted in certain localities, particularly on the Pacific Coast, where it is claimed that climatic conditions make depreciation slower than in some other sections of the country.

In the case of used car sales, the down payment should be somewhat larger than in case of new car sales. The customary minimum down payment in used car sales is approximately 40 per cent.

An argument in favor of a maximum maturity of twelve months is that this is in accord with the purchase cycle. Investigation has disclosed that the average buyer of an automobile is more inclined to consider re-purchase in twelve months or a multiple thereof after his original purchase.

To show the bearing which the amount of the down payment has upon the security of the transaction, the experience of two leading finance companies for a certain period is of interest.

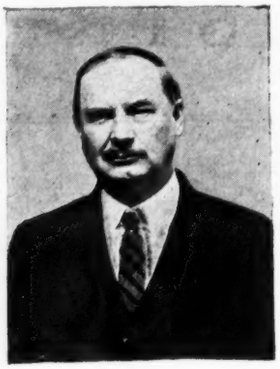
During a stated interval and out of a given number of transactions, there were 294 repossessions where a down payment of 25 per

NEXT WEEK—

What the automobile finance companies, banks, and vehicle manufacturers think about the present time payment situation.

ON July 2, AUTOMOTIVE INDUSTRIES published the results of its survey of automotive financing conditions. Since that time letters have been pouring in from all parts of the country commenting on the article and expressing varying views of what ought to be done to better present methods.

All these suggestions and criticisms will be summarized and analyzed in an article by Norman G. Shidle which will appear in AUTOMOTIVE INDUSTRIES of July 30.



CHARLES C. HANCH is now general manager of the National Association of Finance Companies.

He was a director and an active member of the National Automobile Chamber of Commerce from the time of its organization until a few months ago. He was for many years an official of Nordyke & Marmon Co. of Indianapolis.

Under Mr. Hanch's guidance the N. A. C. C. cross-licensing agreement was drawn up and became effective Jan. 1, 1915, for 10 years.

When the agreement expired at the beginning of this year it was renewed for a period of five years as to all patents then in the pool but not as to new patents which might be granted thereafter. At the time the extended agreement became effective there were 777 valid patents listed in the exchange and 221 patents that has been in the exchange had expired. There has been withdrawn from the exchange 77 patents because of the failure of the owners, the manufacturing companies, to continue in business.

During the war Mr. Hanch was chief of the automotive products section, War Industries Board.

cent had been collected, while there were 143 repossessions where a down payment of 33 1/3 per cent had been collected.

In view of the menace to the automobile industry of any impairment of the credit required to handle the present volume of production, organized automobile finance companies have made sincere efforts since last December to stabilize credit terms, recommending that finance companies adhere to reasonably safe and fair credit terms. They have performed a distinct service to the automobile industry in making this effort. Alone they can not secure general adherence to safe credit terms. The cooperation and support of automobile manufacturers and dealers as well as bankers is necessary in order to accomplish the desired results.

It is to the interest of automobile manufacturers, dealers and the general public to uphold the representative finance companies in their efforts to stabilize credit terms along safe and sound lines.

It should be borne in mind that it is contrary to human nature for automobile finance companies to grant voluntarily credit terms which are improvident or dangerous. Such finance companies are in effect bankers and bankers do not under ordinary competitive conditions take paper that is apparently unsound or lacking in reasonable liquidity.

Dealers should be encouraged by the manufacturers they represent to aid in maintaining automobile paper on the high plane which is so necessary to conserve the vast credit structure upon which present production depends. If there is any unfortunate reaction from certain tendencies, it will be felt by all alike. Improvident and unfair practices should be frowned upon and retail buyers of automobiles should be given the benefit of any economies that can be effected in financing time sales.

Adequate credit has always been the greatest need of the automobile industry. First this need applied to automobile manufacturers; later on it became the prime necessity of dealers, who constitute the most important element in the work of motor car distribution.

Manufacturers have always sold substantially all of their products at wholesale for cash. In the beginning automobile dealers sold all cars at retail for cash, often in advance. As production increased and pressure on the dealer by the manufacturer became greater, enlargement of the dealers' credit became essential.

The average dealer always had some difficulty in financing a stock of cars on his salesroom floor, particularly in the winter time. This difficulty has been lessened as a result of the growing confidence in the automobile industry on the part of bankers generally.

Automobile dealers have become recognized as legitimate merchants, entitled to credit accommodations similar to those extended to merchants in other lines. However, owing to the great demand for motor cars, automobile dealers are required to do a greater volume of business in proportion to their capital than merchants in other lines, and in consequence they require proportionately greater credit. In addition to this greater credit need in financing cars at wholesale, car dealers found that their ordinary banking connections had entirely inadequate facilities for financing retail time sales.

This shortage of credit for wholesale financing and almost complete absence of credit for retail financing resulted in the development, some ten years ago, of the first finance companies, which were in effect highly specialized commercial bankers.

Mass production of automobiles began contemporaneously with the development of automobile finance companies, and it is obvious that without these organizations, mass production could not have been continued and increased. This statement is borne out by the striking figures involved in the aggregate automobile sales account.

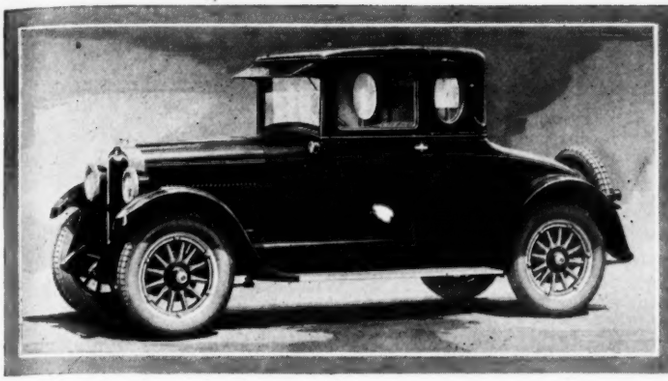
During the last year or so, the retail sales bill of new cars has aggregated approximately $3,000,000,000. It has been estimated that from 65 per cent to 75 per cent of these cars are sold partly on time. At least 70 per cent of such time sales is represented by notes, usually in twelve equal monthly installments.

A large portion of used cars are likewise sold partly on time. The used car paper handled by finance companies amounts to at least 25 per cent of the amount of the new car paper.

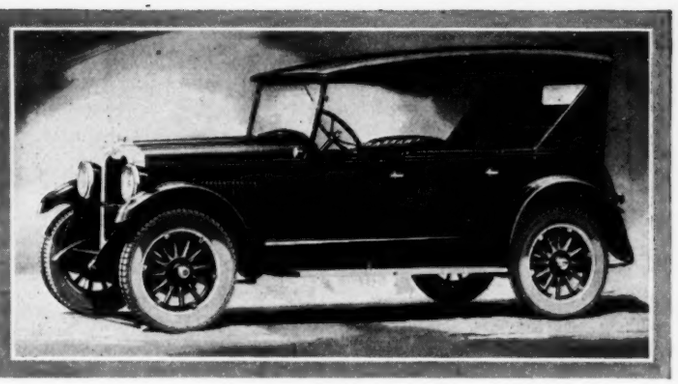
Rough calculations will indicate at a glance that the credit requirements for handling retail sales of new and used cars aggregate approximately $2,000,000,000. Credit requirements for wholesale financing aggregate at least $1,000,000,000 more, making a grand total of $3,000,000,000 as approximate credit requirements each year for retail and wholesale financing of automobiles.

The combined capital of automobile dealers and finance companies is only a small fraction of this sum. Therefore, it is safe to say that bank deposits furnish at least 90 per cent of the credit required for financing automobile sales.

So far automobile paper has been sound, the loss ratio has been very small, and banks have had satisfactory experience with the paper of automobile finance companies, secured by, or based upon, notes given by purchasers of cars.



New Oakland Landau Coupe



The Touring Model

Oakland Adopts "Harmonic Balancer," Drops Five of Old Models

Body lines are changed. Radiator redesigned to increase cooling area. Air cleaner and oil filter added. Oil drain moved. Crankshaft heavier.

By Leslie S. Gillette

A NEW OAKLAND SIX is making its appearance this week. The changes include new body lines, a new radiator, a "harmonic balancer" for the crankcase and more than a hundred minor refinements, among which are an air cleaner and an oil filter. The new models are priced $70 to $350 lower than the old ones.

Concentrated production has resulted in reducing the body styles to five instead of ten, the former two roadster models, sport touring and two closed cars being discontinued.

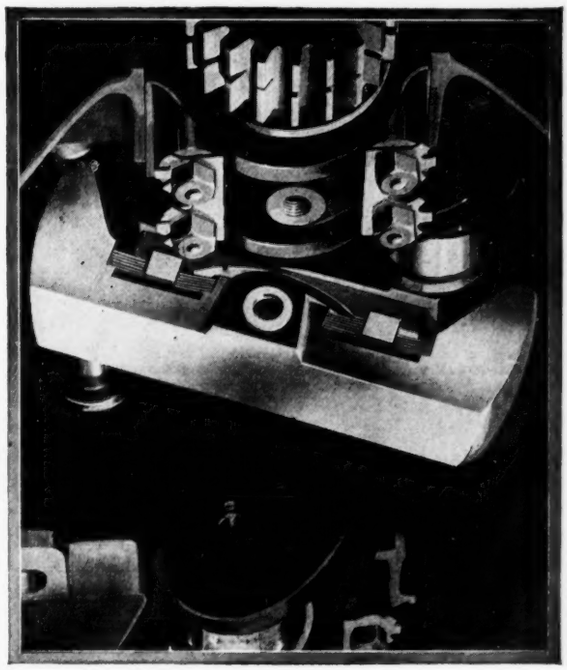
Prices on the new cars cover the following range: Touring $1,025; Coach, $1,095; Landau Coupe, $1,125; Sedan, $1,195; and Landau Sedan, $1,295.

An exclusive development of Oakland and General Motors research engineers, the new harmonic balancer, which is applied to neutralize torsional vibration of the crankshaft, is fitted to the new Oakland cars for the first time. Forming an integral unit with the crankshaft and located between number one and number two crank pins, the balancer is a positive non-wearing medium, requiring no adjustment and insuring uniform smoothness at all engine speeds.

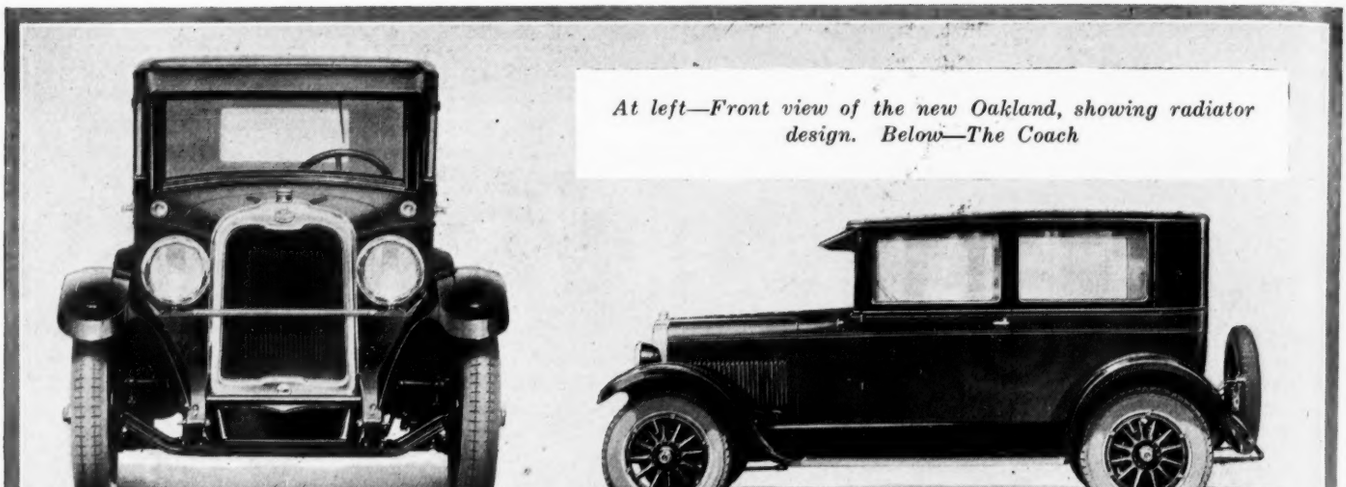
The device consists of a light steel bar, pivoted to the shaft at its center and tensioned by stiff springs at both ends. The weight of the bar and the stiffness of the springs are so selected that the balancer has a frequency of vibration the same as the shaft itself. When, therefore, there is the slightest movement of the shaft, the harmonic balancer immediately picks it up and vibrates in an opposite direction. Each movement of the shaft is opposed by a heavy force which the balancer applies through its springs, and thus holds the shaft steady. It may be indicated that the automobile crankshaft, while apparently a very rigid member, has the same quality of elasticity as a tuning fork, which when twisted, makes it recoil and vibrate at a definite rate. The use of the balancer neutralizes the torsional effects set up after each power impulse.

Turning to the latest chassis changes, the majority of the improvements have been made in the engine to provide for longer life and ease of maintenance. There has been no departure from the characteristic Oakland features and dimensions.

Increasing the weight of the crankshaft thirteen pounds, to a total weight of 66 pounds, has allowed the webs to be greatly strengthened, making the shaft stiffer and stronger. This, together with the harmonic



Harmonic Balancer viewed from below the crankshaft

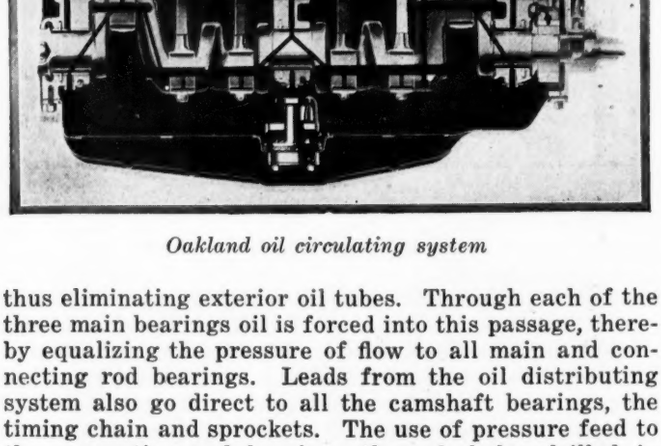


At left—Front view of the new Oakland, showing radiator design. Below—The Coach

balancer, virtually eliminates all vibration. To provide greater rigidity for mounting the crankshaft, the center main bearing has been lengthened from 2⅛ in. to 2⅜ in., while all main bearing caps are secured by four bolts. Previously, the front and center bearings were each held by two bolts only.

To keep the lubricating oil free from grit, carbon particles and other foreign matter, an oil cleaner consisting of filtering cloths and screens carried inside a metal case is adopted. Secured in an accessible position on the left side of the engine, sediment is removed by passing all engine oil through the filter several times each hour at ordinary driving speeds. The interior of the filter, which may be replaced at nominal cost when choked, allows the oil to pass through freely but retains the sediment, thus minimizing the wear and tear of the engine and the formation of the emulsion with the water which collects in the crankcase in winter time. Under ordinary summer driving conditions, it is recommended that the oil be replaced between every 2000 and 2500 miles.

Oil is now fed through ducts in the crankshaft which form a continuous passage the entire length of the shaft,



Oakland oil circulating system

thus eliminating exterior oil tubes. Through each of the three main bearings oil is forced into this passage, thereby equalizing the pressure of flow to all main and connecting rod bearings. Leads from the oil distributing system also go direct to all the camshaft bearings, the timing chain and sprockets. The use of pressure feed to the connecting rod bearings through holes drilled in the crankshaft provides for positive lubrication.

Instead of being at the front of the engine as formerly, the oil pressure regulator is located in the center of the crankcase, where it is accessible for adjustment, and insures full uniform pressure throughout the oiling system. The line to the pressure gage is now taken off from this point.

Deepening the oil pan below the pump allows space for the accumulation of water below the level of the oil pump, thus preventing the pump from freezing in cold weather. Extending the screen across the entire length and width of the pan strains the oil as it returns from its passage through the oiling system. In the extreme possibility of this screen becoming clogged, a by-pass pipe extending from the pump below the screen will automatically allow the oil to be delivered to the engine without passing through the screen.

Oil Pan Redesigned

An important feature, from a service standpoint, has been incorporated in the redesigning of the oil pan. Instead of placing the drain plug in the bottom center of the oil pan, it is now located at the lowest position on the right hand side of the pan, so that it is no longer necessary to crawl under the car to drain the oil. On account of its location, when the oil is released, it carries with it any water or foreign matter which may be collected beneath the pump.

Formerly the valve lifters were of case-hardened steel, but now they are built up with cast iron feet, electrically welded by a patented process, to steel barrels. This type of construction prevents two case-hardened surfaces working together, which was the case in the previous models. The diameter of the valve lifter stems has been increased by 1/16 of an inch, while the valve stem guides have been lengthened by 11/16 of an inch. To give better high speed performance, the valve springs have been compressed more tightly at their upper ends.

Two locking devices are now employed to secure the piston pins. Instead of the former full floating type, the pin is now locked in the piston by a set-screw and works in a solid bronze bushing in the connecting rod. The locking rings at each end of the pin are still retained.

An A. C. air cleaner, a General Motors development, of centrifugal type, is provided as standard equipment to filter the air entering the carbureter. While there are no moving parts in the cleaner, the design imposes a minimum restriction on the air flow, which is estimated to be 72 cubic feet per minute at 25 m. p. h., road speed of the car. Save for the emptying of the quick detachable

sediment container at the front end once a year, the cleaner requires no attention. Improvements in the gasoline tank to prevent water and foreign matter passing into the fuel line have been made by extending the gas line further into the tank.

To eliminate the possibility of the ignition coil becoming wet in inclement weather, it has been removed from the side of the engine and placed under the cowl. At the same time the headlight wires are now carried through the inside of the radiator shell to afford greater protection. A fully perfected automatic spark advance is also fitted.

Making the radiator core deeper and wider has provided 12½ per cent increased cooling area insuring perfect cooling under all possible conditions.

Artillery Wheels Now Used

Lowering the running boards by 1½ inches, the adoption of 30 by 5.25-in. balloon tires mounted on artillery wheels in place of 31 by 4.95-in. tires on disk wheels, and a change in the four wheel brake leverage, constitute the alterations of any importance which have been made on the remainder of the chassis. Braking efficiency of the mechanical four wheel brakes has been accentuated by increasing the wrap of the rear brake. This change allows all brake bands to be interchangeable. To make the brake pedal action softer, the brake pull-back spring has been lengthened and made more flexible.

A new nickel plated radiator shell of ornamental and distinctive design, together with special head lamps now supported by a tie rod and cowl lights to match, gives an impressive front view. The design of the Oakland name plate has also been improved.

Because of the reduced body height, lower running boards and fenders full crowned and deeper by ¾ of an inch, the new cars have a long low symmetrical appearance which harmonizes with the new radiator design. All bodies, which are built by Fisher and finished in Duco, have compact, low-hung lines achieved through the use of beading of the double-moulded type extending from the radiator entirely around the body.

Genuine leather is used in the upholstery of the touring car, which is large and roomy. The windshield is of a new one-piece design and swings outward from near the top where it is fastened to the standards, in such a way as to prevent water leaking through into the front compartment. Side curtains fit unusually tight, as the top is of the permanent type which allows the employing of glass enclosures, the latter being obtainable at extra cost. Finish is in duo-tone Buckingham gray below the beading, with Waverly light gray above.

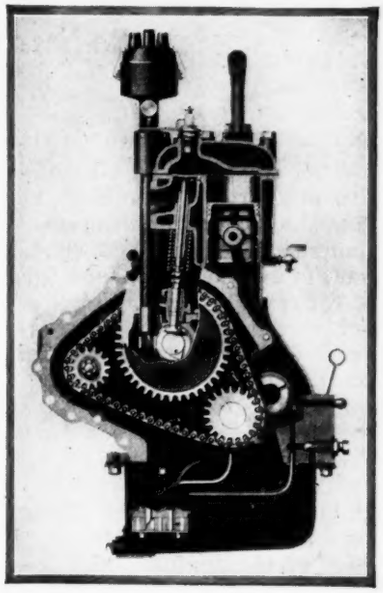
Coach Doors Extra Large

Pullman type front seats, double-hinged to fold forward, with a large three passenger rear seat, are provided in the coach. Extra large doors, 34 in. wide, allow easy entrance and exit. Interior finish is in rich gray corduroy upholstery with gray side walls, while the outside is Buckingham gray with black upper structure.

Finished in Bowling Green, the landau coupe is upholstered in genuine Spanish leather and comfortably seats three persons. Besides the spacious compartment in the rear deck, smaller parcels may be carried in the opening behind the seat.

Pleasing lines have been worked out in joining the top structure to the rear upper panel, while drip moulding along the sides of the top prevent water dropping from the roof on the sedan model. A fine grade fabric is used for the interior upholstery while the exterior is done in Cobalt blue with black upper section.

Exterior finish the same as the coach is employed on the landau sedan with a luxurious gray upholstery completing the color scheme. In addition to the equipment which is standard on the other closed models, it has many distinctive features that make for beauty and utility. The head, cowl and tail lights are nickel plated, a visible gasoline gage is mounted on the instrument board, nickeled bumpers in the front and fender guards



Cross section of the Oakland Six engine

in the rear, motometer and wing cap, snubbers and a special walnut steering wheel are some of its other special equipment.

All closed models have double beading extending along the hood and cowl. Natural wood wheels are supplied on the landau sedan and coupe, while the other three models have wood wheels finished in the respective body colors. Disk wheels may be had at slight extra cost.

Instrument board and steering column fastenings are concealed beneath the cowl on all cars. Instead of being located in the center of the steering wheel as formerly, the ignition switch and carbureter choke have been placed back on the instrument board within easy reach of the driver. The dimmer control, throttle and horn button are still retained in the center of the wheel.

All closed models have a stationary visor designed to harmonize with the bodies, dome light, crank type window regulators in doors and quarter windows, door locks, rear view mirror, window shades, automatic windshield cleaners and Fisher "VV" windshields. The open model is supplied with a hand operated windshield cleaner.

THE latest product of the Wheeler-Schebler Carbureter Co. is a motorcycle carbureter known as the "Vertical De Luxe" and designed especially for use on Henderson motorcycles, models 1920 to 1925. It is somewhat similar to the horizontal De Luxe model which has been on the market for some time. The new model has a lift needle device which permits a rich mixture to be drawn into the cylinder to make starting easy. It has an idle passageway through which all fuel is drawn when idling or running at low speeds. The manufacturers claim that with this carbureter trouble caused by clogging of jets is eliminated and greater fuel economy is possible.

Chrysler "6" Engine Enlarged to Take Care of Increased Weight

Bore is now 3 1/8 in., raising horsepower from 21.96 to 23.44. Bodies appear substantially the same but colors are brighter. Single dry plate clutch used.

PRICE reductions on all models, except the roadster, ranging from $70 to $130, finer bodies in new color designs, a vibration dampener added to a more powerful and refined engine, new single plate type clutch and several improvements on the chassis, characterize the latest Chrysler Six cars, which were first placed on display this week.

Except for changes in the roadster design, a droop in the top line of the closed bodies toward the rear, rounding off the back corners and the new color schemes, the distinctive body lines which identify the Chrysler cars are retained.

In order that the performance of the new series cars would be unaffected by the increased weight of the new bodies and other refinements, 1/8 in. has been added to the bore of the engine, which now stands at 3 1/8 in. in diameter. This change increases the rated horsepower from 21.06 to 23.44, the piston displacement from 201.4 cu. in., to 218.5 cu. in., and allows 8 1/2 per cent greater engine torque.

To balance the increased power, the crankshaft has been made larger and heavier. All seven main bearings are enlarged in diameter from 1 7/8 in. to 2 1/4 in., while 1/8 in. has been added to the connecting rod bearings which are now 2 in. in diameter instead of 1 7/8 in. Corresponding increases in sizes have been made on all main and connecting rod bearing caps, studs and bolts.

Smooth operation at any engine speed has been insured by mounting a vibration dampener, which is friction driven from the hub on the front end of the crankshaft, thus taking the place of the former weighted lower fan pulley. The dampener is a simple automatic device acting as a secondary flywheel, the latter providing the drive for the fan.

Of the same design but slightly modified, the pistons are now fitted with a pin of 13/16 in. diameter instead of 3/4 in., and of greater length. Similar to the ends of the crankshaft, welch plugs instead of screw-in plugs are used to seal the ends of the hollow camshaft.

Wider by 1/8 in., the face of the oil pump gears has been changed to provide the same oil pressure as used on the smaller engine, which represents an increase of the pump capacity by 12 1/2 per cent. At the same time, an improvement in the oil suction feed has been made. If the oil screen should become clogged, the suction of the pump will open a valve held in place over relief holes by spring tension. This opening of the relief holes will allow the oil to come through the pump without passing through the screen.

Water Capacity Increased

Although no changes have been made in the radiator or water pump, the water capacity of the cylinder jackets has been increased to provide greater cooling for the engine. No changes have been made in the fuel system or manifolding except that the intake of the Ball and Ball carbureter has been enlarged by 1/8 in. Extra rigid front support of the engine has been accomplished by casting the legs integral with the timing chain case cover.

Into a slightly larger flywheel has been fitted a new and simpler type of clutch, which is claimed to make gear shifting much easier, has greater capacity to resist heat and will stand considerable more wear.

In place of the former multiple disk type clutch, a single dry plate unit, similar in respects to that used on the Chrysler Four, is employed. Comprising of a pressure plate assembly having six springs, pressure is applied to a drop-forged, hardened steel, splined hub, to which is riveted the metal disk carrying the special woven asbestos cord facings. Three release levers provided with spring locked, knurled nut adjustments are connected with the stationary sleeve which carries the clutch release bearing. A hole drilled in the bottom of the clutch housing permits any oil leakage from the rear crankshaft bearing, clutch release bearing or from the transmission, to drain off.

To compensate for the added engine torque, the face of the transmission gears

The new Chrysler Six retains the characteristic appearance of the previous models

has been increased in size ranging from 1/16 in. to 3/16 in. larger. Instead of the stub type teeth which are customarily used, teeth of full depth, thus giving larger rolling contact are employed. By grinding all constant mesh and intermediate gears, smoother and quieter transmission operation has been obtained. The speedometer gears are now located under the rear main bearing, where they operate constantly in a bath of oil. Because of the larger transmission case necessary to accommodate the new gears and shafts, the propeller shaft has been shortened, while at both ends the flanges have been changed. The gear shift lever has been made longer to give greater comfort in changing speed, while the pedals have been changed in shape and material. To make for smoother application, the emergency brake has been redesigned and in its new form incorporates several parts common to the four cylinder model. The diameter of the transmission brake drum has been increased by one inch.

In line with the other chassis changes, the rear axle housing has been strengthened and the differential carrier made more sturdy and rigid, making at the same time for quieter operation. Both ring gear and pinion are now larger by ¼ in., and have the spiral teeth cut at a steeper angle forming a more substantial engagement. A change has also been made in the angles and capacities of the pinion shaft bearings as well as on the pinion shaft sleeve.

On the frame, the cross members have been altered slightly, the body holes are in new position and the position of the battery box changed. As a result of the basic alterations on the chassis, there have also been changes in the design of the hood sills, radiator hold-down bolts, dust pans, front fender brackets, muffler, exhaust and tail pipes.

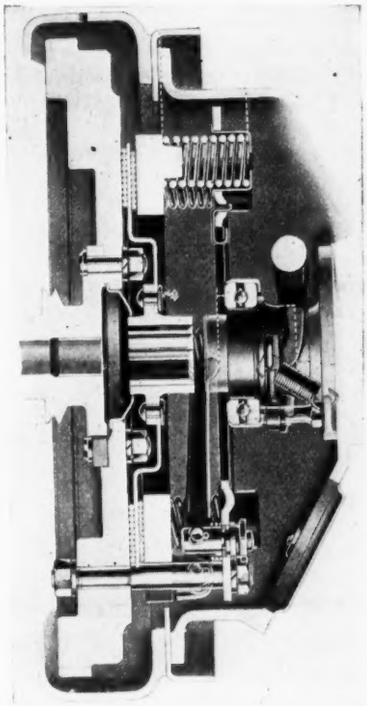
Except for changes in the master cylinder body, tube leads and "T" fittings, there has been no alteration in the four wheel braking system.

Turning to the bodies, most changes have been made on the roadster model which is now finished in two-tone drab, copra drab above the streamline bead and chicle drab below, set off with black molding and a fine flamingo carmine stripe. New bullet type nickel plated headlights and nickel plated windshield frames and stanchions give an added touch of dash. Both doors have been widened by 1 7/16 in., to afford easier access, while the door of the golf club compartment opens sidewise instead of downward as formerly. The top bows which are now of wood, finished in walnut to match the steering wheel and new type of instrument panel, fit into nickel plated thimbles, giving a neat finish. Directed to appeal to a growing number of persons who prefer to drive with the tops down, the latter can not only be folded down neatly, but are so designed to be readily detachable by those who desire to have no top at all. A new top material of taupe tan effect made of two ply rubberized fabric, ensuring durability and waterproof features, is employed. An automatic nickel plated windshield cleaner is provided as standard equipment.

Phaeton Finished in Gray

Plymouth and Pilgrim grays are used on the phaeton, which is set off by a striking stripe of flamingo carmine. Long grain, bright finish, waterproof material is used for the top, which has a white whipcord lining to harmonize with the Colonial gray ivory tinge, soft leather of the upholstery. Side curtains are now of the same weight and material as the top and are equipped with new type of rods and stiffeners, the latter being steel reinforcements to hold the curtains more rigid and provide additional comfort in inclement weather. The front seat has also been moved back one inch to make for more room in the front compartment.

A "D" shaped window in the rear quarter adds greatly to the appearance of the crown imperial, which is now finished in a two-tone color scheme with a black upper structure. The belt is in Bagdad green and the lower part of the body in Topango green, while the striping is of gold bronze. In place of wood window molding, steel, finished to resemble walnut, is employed, it being found that this type of finish is more durable and lasting. The body trim is of genuine gray mohair with head lining to match. Vanity and smoking sets of handsome and new design are used. The position of the seats has also been changed to provide more leg room.



A single dry plate clutch has replaced the former multiple disk type on the Chrysler Six

Little change has been made in the imperial except that the interior fittings are the same as those on the crown imperial.

Body colors on the brougham have been changed to correspond with those on the new roadster model, the interior being the same style as the crown imperial.

The new top lines and rounded corners on all closed models are more noticeable on the sedan, which also is finished in chicle drab, black upper structure and carmine striping. Its interior trim is of blue-gray worsted pile-fabric with a velour head lining.

On the royal coupe, the back window has been altered so that it can be lowered by a crank, making it possible to converse with the persons seated in the rumble seat, the latter being raised 3 in. to provide greater riding comfort. A striking finish is obtained by using an Algerian blue above the bead, Bambalina below the bead and fawn gray striping which harmonizes with the interior finish of blue-gray mohair. The upper structure is in black.

The color of the coach has been changed to Thebea gray with fawn gray striping which, with the exception of the changes already mentioned as applying to all closed cars, remains the same as the previous model.

Equipment included with the bodies is practically the same as on the previous models except that a Sparton "SOS" electric horn is standard equipment on all models.

The price changes on the various models are shown as follows:

Model	Old Price	New Price
Phaeton	$1,495	$1,395
Coach	1,545	1,445
Roadster	1,625	Unchanged
Crown Imperial	2,195	2,095
Imperial	2,065	1,995
Brougham	1,965	1,865
Royal Coupe	1,895	1,795
Sedan	1,825	1,695

Eleven Body Styles in New Nash Line

Special Six is finished to conform more in appearance with Advanced Six model. Air cleaner is made standard equipment. Emergency brake lever now located at left of driver.

ELEVEN types of body styles, four on the Special Six and seven on the Advanced Six chassis, constitute the new line of Nash cars just announced. The particularly outstanding feature of the bodies on both the Special and Advanced Six is the similarity. Excepting for size the bodies look very much the same.

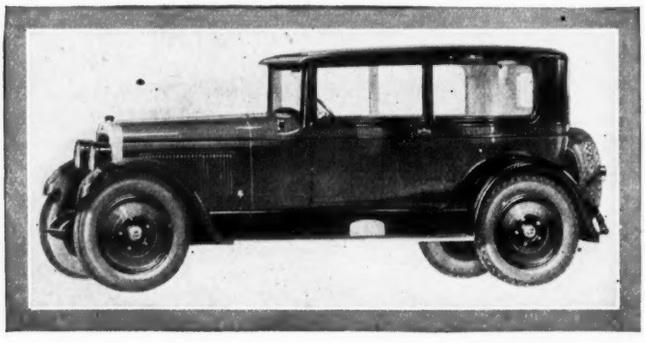
In the Special Six line is a touring, roadster, four-door sedan and a two-door sedan, while the Advanced Six line includes a five passenger touring car, seven passenger touring, roadster, two-door sedan, Victoria, four-door coupe and a seven passenger sedan. All models in both lines are fitted with balloon tires, five Budd disk wheels and four-wheel mechanically operated brakes.

Quite a number of refinements have been made in the bodies, which are built by the Seaman Company. Among other things the trunk platform at the rear of the special Six and Advanced Six five-passenger sedans has been eliminated, adding length to the body which affords quite a bit of new space in the interior. This, together with widened doors and forward folding front seats, gives ample space to get in and out of the rear compartment.

Front Seats Wider and Deeper

To add to the riding comfort the front seats are wider and deeper and adjustable so that passengers may regulate the tilt to any desired position. The adjustment is by knobs located in the floor. An added touch has been given to the appearance by fitting ebony-toned moldings on the window frames of both the Special and Advanced Six five-passenger sedans and these models are now both equipped with dome lights of Colonial pattern and with the new type door latch and window lift. The latch on the left hand door is a combined opener and inside door lock.

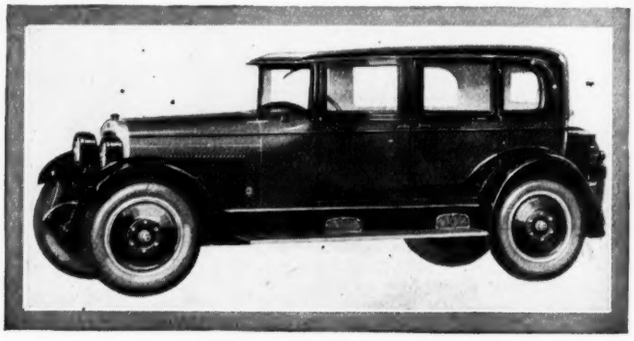
Deeply crowned fenders have been added to the Special Six. The hood also is higher and better proportioned with high and narrow louvres. The radiator is finished in a heavier and higher polished nickel plate. All enclosed models in both series have the new French type roof and visor, and the length of the cars is accentuated by a molding which runs the entire length of the body and hood.



New Nash Special Six two-door, five-passenger sedan

Some change has been made in the location of the gear shift lever and hand brake lever, whereby the latter is now placed on the left side of the driver while the gear lever is shaped so that it allows entrance or exit from either side of the car.

The instrument board layout on the Special and Advanced Six series has been refined and the lighting on the Special Six series is now done from beneath the cowl, somewhat similar to the arrangement of the Advanced Six. The instruments on the latter model have been supplemented by a gasoline gage operating hydrostatically.



The Nash Advanced Six four-door coupe

Several changes have also been made in the chassis of both series and outstanding of the chassis refinements is the application of an air cleaner on the carbureter.

A heat treated steel band is now shrunk on the flywheel of both engines and the teeth are cut in this band. It is claimed by this construction injury to the flywheel is impossible by incautious use of the starting motor.

All models in both series are now equipped with a new type of gasoline tank filler cap as well as a cap for replenishing the oil supply. These caps, instead of having the conventional threads, are fastened in place by a half turn. The front springs on all cars in both series are now equipped with rubber bumpers which materially add to the riding comfort when the car is passing over rough roads.

All open and closed models in both series are equipped with an automatic windshield wiper, rear-view mirror and many other items adding to the comfort and safety of the occupants. No price changes are announced.

Price changes have been made on only two of the eleven models, and these revisions, contrary to the recent trend, have been upward. Both of the models affected are in the Special Six line, the 2-door, 5-passenger sedan being advanced $40, or from $1,225 to $1,265, and the touring car by a like amount, from $1,095 to $1,135.

Just Among Ourselves

Bus Output Sets New Records

A TOTAL bus production of 25,000 for 1925 now seems quite probable in view of the excellent showing reported by prominent bus companies for the first half year. R. A. Hauer, manager of the Mack bus department, for example, states that Mack bus sales for the first six months of 1925 were 34 per cent greater than the total for the entire year of 1924. If other bus builders came anywhere near equalling or if any surpassed that record, total bus output for the year certainly will be double that of last year. And the bus is only beginning its march to the front rank of the transportation industry. Between 70,000 and 75,000 buses will be in operation in the United States before 1926 arrives.

Making a Background for Intelligent Listening

HARKING back to our obsession about making convention papers interesting, we commend as a good example of how to get under way the paper about a "clear course" driving law read by Dr. H. C. Dickinson at the summer meeting of the S. A. E. Dr. Dickinson had a long paper, but inside of the first 60 seconds everybody who listened knew what he was driving at. He told his story clearly and briefly in the beginning, thus providing a background for intelligent understanding of the rest of his paper. We have yet to see the genius who can apply successfully to business or technical writing the short story method of holding interest through sustained suspense. The purpose of the two forms of writing is different and the treatment necessarily must be different. Even engineers don't sit breathlessly excited through a 60 minute paper palpitating to find out whether x plus 3 qt over z will equal n or whether after all only 2 qt will fit.

Minimum Speed Laws Not a Dream

THE suggestion that a minimum speed law is just as necessary as a maximum speed limit is not a new one. Nearly everyone who has been held up in a traffic line by some human offspring of the Snail Family has conceived the idea that people oughtn't to be allowed to drive at an unreasonably slow speed any more that at an unreasonably high one. The idea isn't always expressed in legal terms, to be sure, but the pungency of expression usually gains rather than loses by reason of that fact. Anyhow,it wouldn't be surprising to see minimum speed laws in the future. A step in that direction already has been taken in Connecticut where, under a new law the commissioner may now refuse to register any motor vehicle which is incapable of maintaining a speed of at least 12 miles per hour.

Sleeve-Valve Rumors Going the Rounds Again

THE sleeve-valve engine has had many proponents in the automotive industry for a long while, despite the fact that such a powerplant is in production in only two or three passenger car lines. Rumors of further sleeve-valve engines in other passenger car lines have appeared on a number of occasions in recent years, but thus far nothing concrete has developed. The rumors are in the air again. This time something may happen. We'll know better by New York Show time next year.

Hudson-Essex Sold in Department Store

THE Gilchrist Company, one of the largest department stores in Boston, has announced that it has signed a contract to sell Hudson and Essex cars in its building as a sub-dealer under the Henley-Kimball Company. The Gilchrist Company occupies a large building on Washington street at Winter Place, in the heart of the department store district. It is remodeling one part of the store with a private entrance on Winter Place where the cars will be displayed. This is the first time that any department store has ever gone into the sale of automobiles in New England and the outcome will be watched with interest. To meet the fire laws various regulations must be obeyed and the section of the store where the cars are displayed will be made fireproof.

A New Way to Sell Cars

HAS the time arrived for trying new methods for selling motor cars? At least one man who has been an important figure in the motor industry for years seems to think so. In a city where one of his big distributors gave up the line, he was sought out by men seeking positions as branch sales managers, salesmen, etc. So he gave the matter some study. Finally he outlined a plan whereby each man was to take one of his cars, go out on the road and sell it, then come back and get another. In other words the automobile salesman was to be like the vendor who goes out from door to door with his wares and makes his sales until he is cleaned out. The magnate has been busy arranging for locations to take the place where he was covered formerly by his distributor. It will be interesting to see how his plan works out. N. G. S.

How the U. S. Equipment Man Can Sell More Goods in Europe

Big market is developing on other side for American automotive specialties and accessories. Right kind of representatives and cooperation will bring business

By P. A. Karl
Export Manager, Brunner Mfg. Co.

I WAS in Europe on business and had stopped for a few days in Copenhagen. As I was taking my departure one of the largest jobbers of automotive specialties in the city, one who traded to a large extent in American products, entrusted me with a message to a fellow export manager in the United States.

Now, it happens that the fellow export manager's line is not an easy one to sell in Denmark at the present time, but the Copenhagen jobber had been handling it with marked success. And his message, partly at least, told me why.

He said: "I want you to tell Mr. —— that I like him, though I have never met him. *His cooperation has been splendid.*"

The last sentence is italicized to emphasize one of the most essential points that the American manufacturer of automotive equipment has to consider in building up a market for his products in Europe today. He must first stake off his territories; in each territory he must find a live-wire native representative who knows how to take his line and push it; and finally, he must cooperate with his representatives—back them up with all the resources of his organization in America.

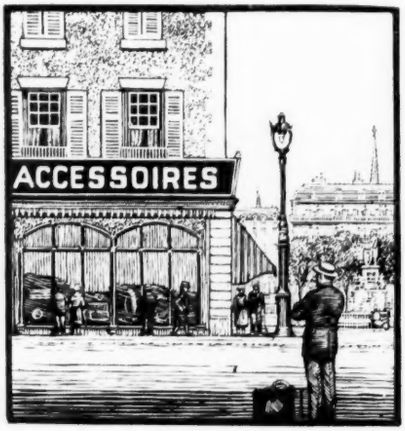
During the past few years sales in Europe have been obtained at a greater cost of time and effort than has been necessary to build volume in any other area of the world. This experience is, I am sure, common to most American export managers endeavoring to find outlets for automotive equipment in that market.

A favorable change is now in progress. Throughout Europe there are many indications that American automotive equipment is preferred to that produced in any other country, and this tendency will become more general.

An opinion expressed by one of the leading wholesalers in Holland affords a typical viewpoint.

This jobber admitted that until recently his house had not considered America as a possible future source of supply for automotive equipment. Of course they were bound to fill their post-war needs from America, but that condition was looked upon as a temporary expedient, necessary only so long as Europe was disorganized industrially. Now when Europe is once more on her feet, this jobber finds that European manufacturers cannot duplicate the bulk of America's automotive specialties. America has come to be a real, permanent source of supply for most of this jobber's requirements. As a matter of fact, his American interests are growing to such an extent that an American buying visit is now contemplated.

In Spain I found a growing appreciation of the real merit of American automotive specialties. One jobber, probably the best in Spain, is organized with a plan to market American equipment exclusively.



Selecting the right type of merchant is important for the American manufacturer who wants to sell in Europe

One would not look for a similar development in Germany, protected with high duty and import licenses and served by a host of manufacturers flooding the home market with cheaply made, low-priced equipment. Yet even here there is a large jobber concentrating his energy and enthusiasm on the sale of American lines. In his separate retail store located on Berlin's famed street and select shopping area, Unter den Linden, American automotive equipment dominates all counter and window displays.

Other markets, such as Australia and South America, are far better acquainted with the range and value of American specialties than Europe. To a certain extent European wholesalers realize the need for close acquaintance with American products, and are prepared to study American sources of supply. Consequently buying visits to this country are becoming more frequent. A number of jobbers in various countries

are looking forward to buying visits in the States. In Denmark I talked with three jobbers who are expecting to attend the A.E.A. Show in Chicago this November. All three had been in America on buying trips last November.

It seems apparent that markets in Europe now offer an opportunity for larger sales of many well-known American specialties. While many lines of automotive equipment not sold now can obtain sales volume in Europe, and lines already introduced can secure greater amount of business, little will be done without proper representation and cooperation. A good product meeting the needs of the market is essential, but a good product not wisely merchandised will get nowhere.

I recall the sales history of an American product sold in Finland. The old distributors had done but little with this line in the course of three years. Dissatisfied with the small return, the manufacturers appointed a new distributor who, in five months' time, developed a volume greater than the old distributor had obtained over a period of three years. The new distributor, keenly enthusiastic for the line, has scarcely had time to evolve his sales plans fully. So many new sales avenues have been opened that the distributor already realizes he has not more than scratched the surface of his market.

American prestige in Europe is high. The business men like to do business with Americans

In traveling through the various countries of Europe I came in contact with this same problem again and again. Even a mediocre line well represented can secure far more business than a well-made and well-known line that is inadequately represented.

This is self-evident and would not seem to require comment. I dwell upon it here merely because the selection of proper representatives in various European markets is attended with difficulties. The wholesaler in Europe does not follow the American pattern of concentrating effort along three distinct lines—accessories, replacement parts and shop equipment. In several countries I met jobbers who were aiming at this standard, but they are the exception rather than the rule. While the future may produce more jobbers of the American type, I believe that we cannot look for too great a movement in this direction.

The average wholesaler feels he is a specialist. Even when his field happens to be accessories, he is not inclined to cover the whole range of accessory equipment. The sales viewpoint of such a jobber does not make him a good medium of distribution for shop equipment manufacturers. Indeed, the manufacturer must sometimes seek his outlet with a machinery wholesaler or with an organization marketing specialties that are sold to the garage trade.

Selection of the proper distributor or representative becomes a problem that must be considered apart from the character of the distributor in a nearby or neighboring market. Under conditions as they exist one cannot as a rule successfully pick distributors from a list of prominent jobbers. Analysis of the distributor's ability and capacity with a study of the field covered is requisite.

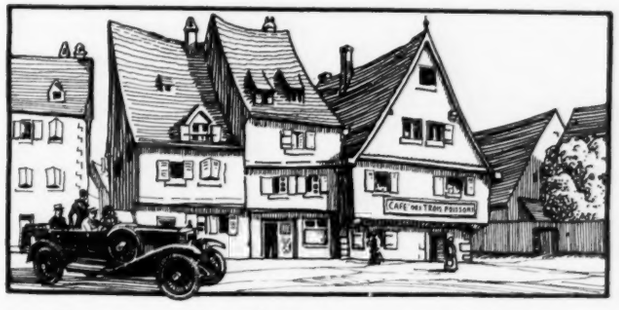
Able representation is a matter of some moment as it is not always an easy task to market American equipment lines in Europe. Low-priced competition, lack of consumer demand and other difficulties form obstacles to sales results. In our own case I have known jobbers to tell us that our line simply could not be sold because our price was twice that of competitive equipment. In face of these predictions, another house has taken on our line and built up volume sales. The difficulties, so real to the timid jobber, were overcome by the enthusiasm and merchandising genius of the other.

For the sale of most specialties in Europe an able jobber with enthusiasm for the line is very nearly a necessity. In other markets perfunctory sales efforts will get some returns, but not in Europe. But a line ably merchandised can secure perfectly amazing results at times in spite of seemingly insurmountable obstacles. An outstanding instance with which I became acquainted relates to the sale of a small unit value line of automotive equipment in France. Through advertising of a rather unique character and a splendidly developed merchandising program, the distributor has developed a sales volume that is quite phenomenal. Other American manufacturers have been astounded to learn the success of this particular product.

This French distributor sold the line for standard use and then proceeded to create a wider market by developing new uses and new sales channels. To this gentlemen there was nothing extraordinary in creating new markets, as he had previously broadened the scope of another American product to an extent that its makers did not dream possible. This latter product is sold in America exclusively for automotive service. Through exercise of ingenuity, in France greater markets have been developed for this line outside the automotive field.

Representation of this kind is exceedingly valuable. There are still a great many obstacles impeding sales of most lines, so able, enthusiastic representation is needed to attain volume.

The distributor, however, cannot be expected to keep on generating enthusiasm if cooperation is not forthcoming from the factory in America. This is understood but quite often not practiced. As an instance, I found a well known firm holding up for ten months shipment of needed literature to their representative. The representative asked for 1000 catalog sheets to complete a loose leaf catalog of several American lines. This catalog is still held up solely because the American manufacturer has been deaf to pleas for needed literature. Despite cables and letters the representative has received in ten months' time forty-five sets of sheets to apply toward the 1000 requested. The delay in completing the catalog is, un-



Throughout Europe there are many indications that American automotive equipment is preferred to that produced in any other country

fortunately, also retarding sales of the other American lines.

These instances are not as infrequent as one may imagine. They may prove to be slightly different in character but they mean so often a lack of the simplest kind of cooperation. It is true that European firms are guilty of the same practice; indeed, much more often than American firms. But why should such instances of poor cooperation be allowed to happen at all?

American prestige in Europe is high. Very frequently I found that jobbers preferred to do business with us because European firms are prone to give poor service and no cooperation. In this respect we have an advantage of which we should certainly make the most.

The foreign distributor or representative is very easily satisfied and expects no unusual cooperation. There may be exceptional cases where distributors seek to work the manufacturer for all that can be had. I believe that those cases are rare. In reality I was positively amazed to learn that the foreign distributor expected so little and was willing to shoulder a lion's share of the merchandising burden—generally more willing than his American brother.

Under such circumstances the export manager who endeavors to work closely with the foreign distributor and is prepared to extend more extensive cooperation has an exceptional opportunity to build good will. This is quite important, especially in those particular cases where the line is a difficult one to sell. The good will begotten through sincere cooperation stimulates the distributor to do more for that particular line.

Lively cooperation will do much to meet local competition successfully. Imitation of American products continues and will doubtless grow more extensive. This does not mean loss of these markets because many specialties cannot be replaced by European manufacturers, operating under the severe handicap of limited markets. Our enormous home market enables us to manufacture a quality article at a relatively low cost and to place that product in Europe at a price that is reasonable. While we do not depend on foreign markets for quantity production, these additional sales outlets are highly desirable as an addition to what we already have.

Automobile Industry in Belgium Shows Steady Growth

THE extent of automotive development in Belgium is shown in the following table compiled from figures furnished by the British Commercial Secretary at Brussels:

	1921	1922	1923	1924
Passenger cars....	14,999	21,839	31,000	39,849
Light trucks.....	2,257	4,735	10,000	16,390
Heavy trucks.....	3,390	5,133	6,000	6,997

Local manufacturers enjoyed both an active and profitable business last year. During the first nine months the number of cars turned out locally was 4485, against 3651 during the corresponding period of 1923.

The number of cars imported during the first nine months was 5980, against 11,646 in 1923. However, no actual decrease was experienced, mainly attributable to the change of policy on the part of Ford, who has a large assembly plant at Antwerp. It is confirmed that these works are to double production and Antwerp is to be made a distributing center for Belgium, Holland, Germany, France and Switzerland.

The number of complete cars imported from America in 1924 was 1261, against 8809 in 1923, but during the same period the quantity of parts imported from the United States increased from 2549 to 13,392 tons. French makers increased their exports to Belgium from 1823 to 3844. Italian imports also showed an increase from 575 to 618 cars. The imports of British and German cars fell from 141 to 114 and 116 to 23, respectively.

Belgian car exports jumped from 5967 units in 1923 to 11,508 in 1924. This development is due to the Ford plant at Antwerp. Holland alone took 6926 Belgian cars in 1924, Germany coming next with 3132. Switzerland took 478 cars, Great Britain 411, Spain 56, India 43, Portugal 26 and the Argentine 17.

A FRENCH automobile publication has made an inquiry among its readers to determine which they consider the twelve most necessary spares and tools to be carried along on a car. The result of the vote was as follows: Spare wheel, 2165 points; universal or combination plyers, 2042 points; jack, 2041 points; tire tool, 1768 points; monkey wrench, 1683 points; tire pump, 1407 points; screw driver, 1248 points; spare spark plug, 1068 points; hammer, 721 points; insulating tape, 665 points, magneto wrench, 655 points; annealed wire, 632 points.

A FOREIGN contemporary prints the following report concerning automobile conditions in Russia:

"The Central Administration of Local Transport recently submitted to the Foreign Trade Commission some suggestions regarding the importation of foreign automobiles during the coming fiscal year. According to these there are to be imported a total of 1318 cars. The total requirements in motor vehicles during the coming year has been estimated at 2088, including 288 passenger cars, 975 1½-ton trucks and 825 3-ton trucks. From this there is subtracted the home production, estimated at 125 passenger cars and 645 trucks.

"A protest against this program has been registered by the Central Administration of the Russian Automobile Works, which asserts that during the coming year the imports must be limited to 250 vehicles. This is based on the premise that transportation is not developing but actually retrogressed during the past year. There is no prospect of any improvement during the coming year, as the roads are in an entirely impassable condition and must first be put in repair. But this work can be begun only next year. Aside from this it is absolutely essential to the development of the Russian automobile industry that imports be completely prohibited for years to come.

"This protest from the Administration of the Automobile Works is supported by the Chief Administration of the Metal Industry, which indorses the assertions made. Regarding the status of the automobile industry and trade the following information has been published:

"The number of cars in operation in Leningrad is 1750 and the same proportion to population holds in most of the other cities. Concerning the distribution of cars in the country it is impossible to give any figures. Trade in motor vehicles, motorcycles, parts and accessories is entirely in the hands of Auto Prom Torg, Prospect Wolodarskawo 35B. This is a stock company with 40 per cent Government participation, located in Moscow. Under present conditions any move with respect to the manufacture or sale of cars without preliminary arrangement with the Trade Commission is impossible, and the latter issues permits only if it is offered long term credits."

General Motors of Canada's New Parts Plan Sweeps Precedents Aside

Independent garages and service stations, as well as rival car dealers, recognized as outlets for replacement parts. Parts classified as to rate of turnover.

By Donald Blanchard

GENERAL MOTORS of Canada has inaugurated a plan of parts distribution which sweeps aside many of the precedents which have long been associated with the parts policy of nearly every car manufacturer.

This new plan is of special interest at this time in view of the fact that a committee has just been appointed by the National Automobile Chamber of Commerce to make a survey of parts distribution methods.

The General Motors of Canada plan is described here in detail.

GENERAL MOTORS of Canada, has introduced recently a plan of distribution of parts which contains several features not usually found in car manufacturers' parts policies at the present time. Two points in the new plan are of special significance:

1. The dealer and independent garage man is recognized as a part of the structure through which the car manufacturer may distribute his parts. Under the General Motors of Canada plan, the independent can secure standard parts at a discount from General Motors of Canada or its dealers. This discount is such as to provide the dealer with a profit and at the same time make it profitable for the independent or competing car dealers to buy parts from the dealer.

2. To guide dealers in purchasing so they will get rapid turnover, the factory has classified all parts as to probable rate of sale. With this information the dealer knows when he places an order for a certain part, about what the demand for it is likely to be.

Under this plan many of the cob-webs of precedent in parts distributing as promoted by the car manufacturer are swept away. Car sales competition among dealers too often have led to a hostile attitude towards competitive car dealers which extended into selling them parts to recondition "used cars." Often no courtesy discount has been given. Often the parts could not be procured at all among the different dealers. Now the dealer or independent garage man who qualifies under this plan receives an adequate discount, and, in the case of a competitive dealer, usually will gladly extend this same courtesy in return. This means that General Motors of Canada, Ltd., has recognized in a broad way that their car owners should be able to procure General Motors parts no matter where the repairs to the owners' cars may be made.

To understand the operation of this plan it should be remembered that parts for the General Motors passenger car lines and the GMC Truck are all handled by a central parts department at Oshawa, Ont. This is very different from conditions existing in the United States, as here each Division handles its parts distribution independently. This means that different policies are possible in each organization, whereas in the Canadian only one is possible.

Classifying the parts sold by the factory according to their turnover is an important factor in the success of the plan. When this is fully developed a dealer or parts buyer of any class will be able to buy intelligently in accordance with the demand for that part. By keeping large parts stocks at the factory and at strategic points throughout the country, and by selling their parts at a discount acceptable to both dealer and independent garage, the company has not only protected the service offered on their cars but have made it profitable for this service to be rendered.

Among its own dealers General Motors of Canada in promoting service has not lost the point of helping the dealer to operate his parts business profitably. This has been developed conservatively and not by parts selling campaigns which leave inflated stocks in the dealer's hands.

The factory has parts and service representatives who sell parts but not on a volume basis. Their duties are mainly of an educational nature as the company wants to build up a dealer organization with properly designed systems, and of solid worth—not mushroom growths that cannot stand on their own feet.

Flat Rate System Used

The flat rate system of selling service and the flat rate compensation plan of paying mechanics is promoted by these men, a very complete plan having been worked out by the service promotion department. Adoption of these methods means not only better and more profitable service, but it also results in bigger volume which, of course, is reflected in parts sales. In addition, the factory parts and service representatives assist dealers in the installation and operation of perpetual inventory systems and also promote the use of bin equipment.

Dealers are asked to carry a set value of parts for each car in their territory consistent with the proper requirements to give service to these owners. It is only with new dealers that this requirement is referred to as with the established dealers their stocks invariably exceed this figure. Encouragement is lent to the dealers to increase the turnover of parts by relieving their stock of slow moving parts, from time to time, and lending assistance in placing these with other dealers when required. Special parts lists of fast moving parts are issued and dealers are also assisted by another method. Parts which are moved at the rate

of 1000 or more yearly and those moving at lesser rates are classed according to the following table:

Class	Number of units sold by factory annually
A	0 to 10
B	10 to 25
C	25 to 50
D	50 to 100
E	100 to 500
F	500 to 1000
G	1000 and up

When the classification is extended to all parts handled by the company it will be of material assistance to the dealer in arriving at the relative rates at which the parts are likely to sell and in buying for stock. With this thought in view all orders received at the factory, branches or depots are scrutinized and where the dealer appears to have ordered more than he can hope to move in a reasonable length of time the quantity is reduced and an explanation sent him. This is another evidence that the company is not endeavoring to just sell parts to their dealers, but want to help the dealer toward profitable, fast moving stock.

In order to cope with the tremendous distances in Canada where the population containing the car owners is spread over a long narrow area from the Atlantic to the Pacific, branches are located at twelve strategic points. Depots for the distribution of General Motors parts are operated from these branches in Western Canada and the Maritime Provinces while Ontario is taken care of from the factory at Oshawa. These parts depots in Western Canada are located at Regina, Sask.; Saskatoon, Sask.; Calgary, Alta.; Edmonton, Alta., and Vancouver, B. C. Winnipeg, Man., is the headquarters for Parts and Service control in Western Canada. The branches in Ontario and Quebec only carry parts for the particular line they represent. The Depot for the Maritime provinces is located at St. John, N. B., and is being put in operation this month.

The broad attitude behind the whole plan, particularly in its application to dealers handling competing makes and independent garages, is indicated by the announcement bulletin which was sent to all dealers, General Motors and otherwise. It reads as follows:

> We have for some time recognized the important part played by legitimate service stations, other than those of our direct dealers, in servicing our product.
>
> The service stations cannot continue to give good service unless they operate their businesses at a profit. In the past we have given a discount to all service stations on our parts and in many cases we accepted parts and service agreement contracts which entitled them to a special discount. We, however, have a new plan in operation whereby the applicant who can fill our requirements will be entitled to a larger discount than has previously been extended to parts and service agreement holders.

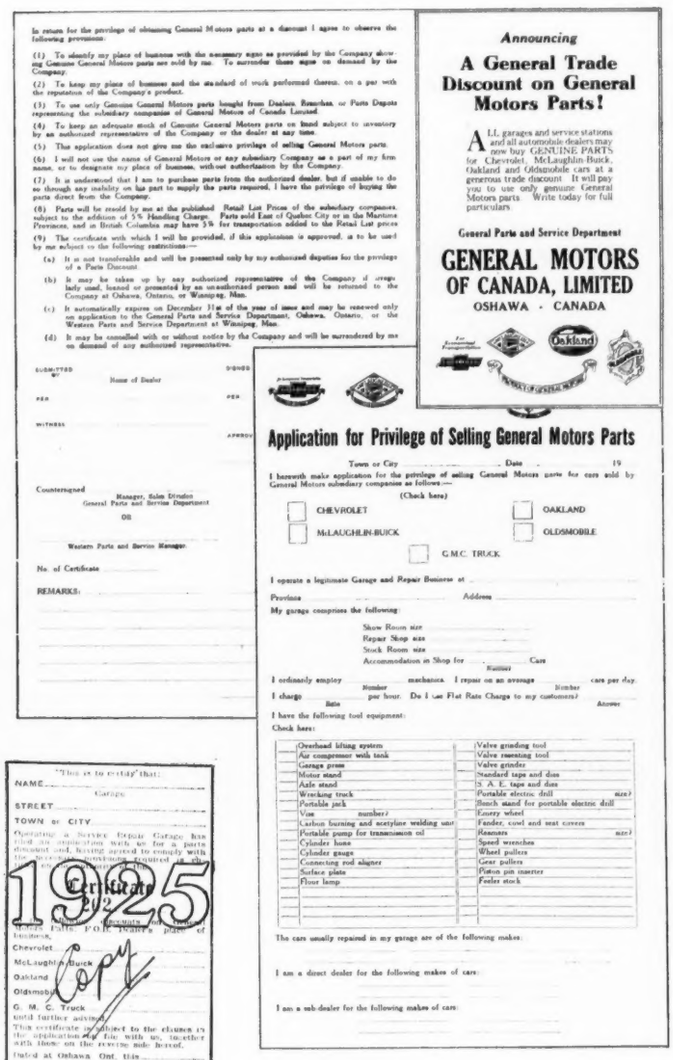
Application Form Attached

We are attaching an application form which we would ask you to fill in and return. If accepted a certificate will be issued to you enumerating the discounts to which you are entitled. This certificate may be presented to any General Motors direct dealer. For the convenience of carrying this certificate a holder or case is provided by the company at a nominal charge of 50 cents net. All certificates are issued for the current year only and will be renewed each year upon application to the General Parts and Service Department, Oshawa, Ontario.

Please attend to this promptly so that you will be able to take advantage of the new discount available from the dealer, branch or company at Oshawa, provided of course your application is accepted on the new agreement plan.

The application blank and the certificate referred to in the foregoing are reproduced in the accompanying illustration. It will be noted that the applicant is asked to list the equipment in his shop in considerable detail. The reason for this request is that particularly well equipped shops, which consequently are able to give better service, are allowed an extra five per cent discount. An advertisement used to announce the plan in one of the Canadian automotive trade papers also is reproduced.

Before issuing a certificate, the applicant is visited by a parts and service representative who checks up on the correctness of the statements in the application blank and sizes the dealer or garage man up as to his general desirability. General Motors dealers in the locality also are interrogated as to the applicant's fitness. If the application is granted, a certificate is issued, the discount rates being entered in the proper spaces.


Announcing
A General Trade Discount on General Motors Parts!
ALL garages and service stations and all automobile dealers may now buy GENUINE PARTS for Chevrolet, McLaughlin-Buick, Oakland and Oldsmobile cars at a generous trade discount. It will pay you to use only genuine General Motors parts. Write today for full particulars.
General Parts and Service Department
GENERAL MOTORS OF CANADA, LIMITED
OSHAWA - CANADA
Oakland
Application for Privilege of Selling General Motors Parts
CHEVROLET
OAKLAND
McLAUGHLIN-BUICK
OLDSMOBILE
G.M.C. TRUCK
1925
Certificate
Chevrolet
McLaughlin-Buick
Oakland
Oldsmobile
G. M. C. Truck
Copy

THE face and reverse of the application blank which is used by dealers to get discount privileges on General Motors of Canada parts. In the upper right corner is an advertisement announcing the plan in one of the Canadian automotive trade papers and below, at the left, the certificate issued to dealers entitled to discounts is shown.

While the discounts are not quoted in this article it is sufficient to say that the discount to direct General Motors dealers is large enough to give them a substantial profit not only on sales made direct to customers at list prices, but also on the business they do with other dealers and the independent garages.

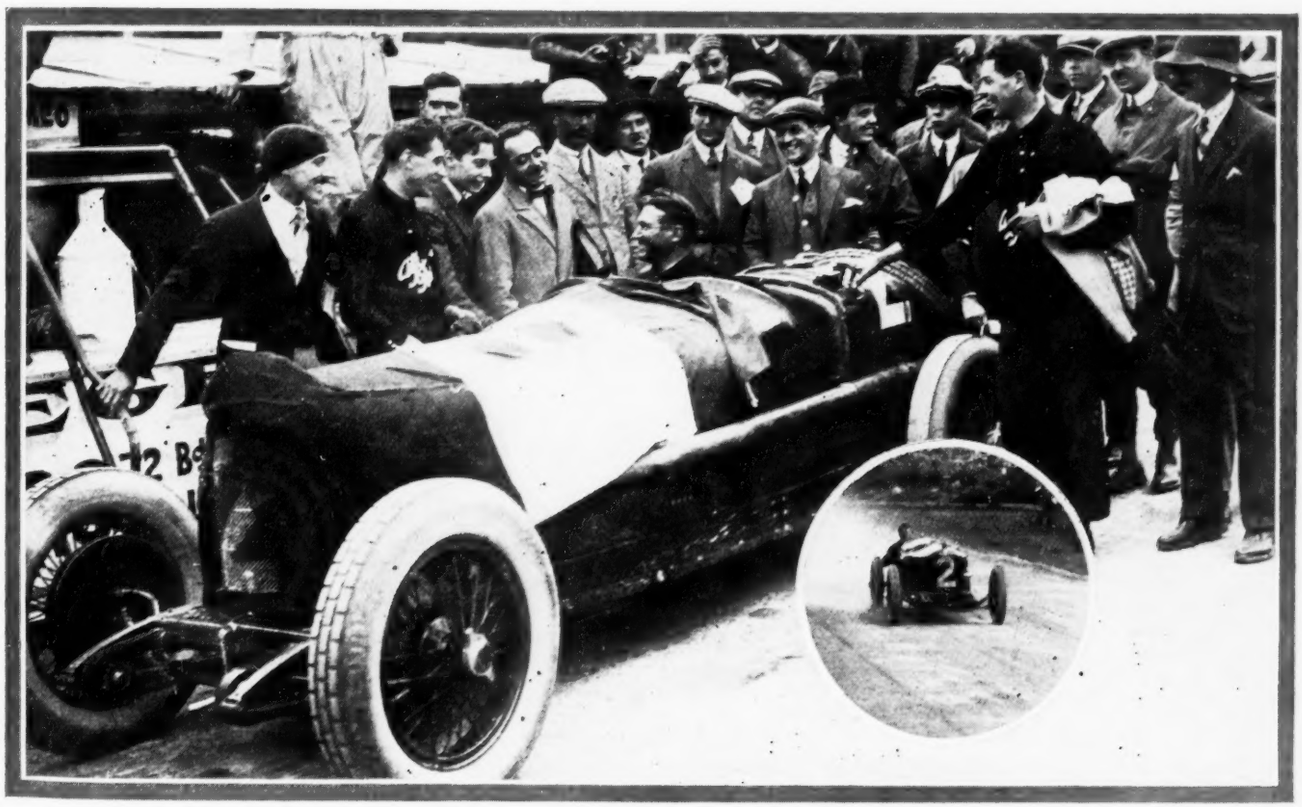
Provision is made in this plan for ordering direct from the factory or branch to take care of cases where a dealer has some insurmountable objection to selling parts to competitors. The company, however, prefers to have the business handled through its dealers, and, where necessary arrangements can be made, all direct orders are billed through them so they will have the parts turnover of their stock and be able to cater to the customer direct when further orders are contemplated. All shipments are C. O. D. except where credit has been established. Certificate holders will be visited ultimately on an average of once a month, these visits being primarily of a good-will building nature.

This plan makes General Motors parts universally available, and the substantial dealer discounts allowed provide an incentive for dealers handling competitive makes, and garages in general, to use General Motors parts. The former class of dealers need parts in their "used car" departments and the latter for general repair work. By making it possible and profitable for them to buy parts, service to owners is improved and the direct General Motors dealers increase their business field and their stock turnover.

From the distribution standpoint the plan is of interest because it is indicative of a possible trend of the car manufacturers' merchandising activities. Discounts offered competing dealers and garage men are considerably higher than the average prevailing in this country. This plan has value in promoting good-will towards General Motors' products and consequently will materially offset possible sales resistance in these quarters.

The recognition of the independent garage operator in this way removes one of his pet grievances and should be well received by him. The idea of promoting parts sales as money-makers without detrimental efforts on service may be the solution of a problem which has worried car manufacturers for a long time. The classification of parts according to turnover and the issuance of fast moving parts lists, for the guidance of dealers in buying, represents a definite step forward.

Alfa Romeo Car Wins European Grand Prix



Antoine Ascari in the winning Alfa Romeo

ANTOINE ASCARI, automobile dealer at Milan, Italy, won the European Grand Prix at Spa, Belgium, driving a straight eight supercharged 122-in. Alfa Romeo car at an average speed of 74.46 m.p.h. for a distance of 500 miles. Campari, on a sister machine, finished in second place 22 minutes behind the winner. No other cars finished the race.

The European Grand Prix, which theoretically is the most important speed contest in Europe, was entrusted to Belgium this year and was run over a short, hilly and winding road course in the neighborhood of Spa. Only twelve entries were received and only seven cars, three Alfa Romeos and four Delages, faced the starter. Of the seven cars, five dropped out before the finish.

Plan Worked Out for Standardization of Oil Viscosity Tests

Committee of American Petroleum Institute makes recommendations for eliminating discrepancies in the results obtained by different observers with same oil and instrument.

GRADUALLY petroleum chemists have arrived at the conclusion that it is impossible to standardize the Saybolt Universal and Furol viscosimeters by linear dimensions alone and that some other way must be found to make it possible for different operators to secure comparable results on a given oil with different instruments of the same kind.

A Committee on Viscosity Standards of the American Petroleum Institute, of which T. G. Delbridge of the Atlantic Refining Co. is chairman, has had the matter in hand for the last three years and recently has issued a report in which recommendations are made, which, it is believed, will solve the problem if adopted.

A preliminary investigation made early in 1922 showed that of twenty-six laboratories reporting, sixteen made a definite effort to keep their instruments in such condition that they would check with others, either by maintaining primary standards, by returning tubes to George M. Saybolt for checking, or by comparative work with other companies. It was also found that viscosity determinations made on a certain oil by these laboratories gave results varying between 200 and 223 seconds at 100 deg. Fahr., the results of eight of the laboratories checking to within 1 per cent.

The Committee mentioned was appointed at a meeting held at the Bureau of Standards on Nov. 14, 1922, and it adopted a plan of work of which the following is an outline:

> (a) To devise practical working directions or a method of operation for the Saybolt Universal and Furol viscosimeters so that the observed Saybolt or Furol seconds on the same oil, with the same instrument, but by different operators, will check closely, as within one per cent.
>
> (b) To establish practical reference standards for viscosity, Saybolt Universal and Furol, which will serve the American petroleum industry, until such time as the Bureau of Standards may devise an absolute standard.
>
> (c) To devise a practical method for correcting the results obtained from any given Saybolt Universal or Furol viscosimeter so that the *reported* Saybolt or Furol seconds on the same oil, by different operators working with different instruments, will check closely, as within two per cent.

The first step in the standardization of the Saybolt Universal viscosimeter was to select a reference oil which would not change in viscosity with time and to distribute this oil to the laboratories of members of the committee. When this oil, known as A.P.I. oil No. 1, was tested according to methods which the committee members considered most accurate, and on Saybolt tubes which they considered standard, the average time of flow was 181.4 seconds, with reported values varying from 180.0 to 182.7 seconds.

Further tests were made with this same oil using a method based on the A. S. T. M. method D-27-21 modified by specifying a water bath at a temperature of 100.25 ± 0.05 deg. Fahr. The average viscosity was found to be 181.17, with a maximum of 182.7 and a minimum of 180.0 seconds. These tests were thoroughly discussed at a meeting of the committee in Atlantic City, June 22, 1923, and it was finally agreed to adopt the value of 181.0 seconds as the viscosity, Saybolt Universal at 100 deg. Fahr. of A. P. I. oil No. 1, this being the average value of a Saybolt Universal viscosimeter in good mechanical condition and conforming to the A. S. T. M. linear dimensions, with a room temperature of about 77 deg. Fahr. and bath temperature of 100.25 deg. Fahr.

Tests in the different laboratories on other oils of viscosities ranging from 92 to 500 seconds at 100 deg. Fahr. led to the conclusion that tubes of standard dimensions which agree at one viscosity would agree at all others, and that therefore one oil was sufficient for the calibration of a viscosimeter tube. The Bureau of Standards was accordingly asked to adjust two Saybolt Universal viscosimeter tubes (A29 and A30) to give a time of flow of 181.0 seconds at 100 deg. Fahr., for A. P. I. oil No. 1, using the same method of operation as had been used by the committee in arriving at this time of flow. One of the tubes, so adjusted, was circulated and examined in the laboratories of the committee members and was found to give an average time of 180.99 seconds, with a maximum of 181.26 and a minimum of 180.5 seconds.

One Oil Is Sufficient

Considerable additional data is presented by the committee to confirm the conclusion that one oil is sufficient for the standardization of a viscosimeter tube.

At a meeting in Washington, Nov. 9, 1923, it was agreed that this tube (A29) should be regarded as the Bureau of Standards master tube for the standardization of all Saybolt Universal viscosimeters. It was further agreed to indorse the practice of the Bureau of Standards of certifying the linear dimensions and time of flow of all Saybolt Universal viscosimeters which they standardize. These certificates also specify the corrections to be applied. Certificates as to linear dimensions only are not to be issued.

The question arose as to whether tubes which agree at 100 deg. Fahr. will agree at 210 deg. Fahr., i.e., whether standardization at one temperature is sufficient. It was found that tubes which gave a time of flow of 181 seconds on A. P. I. oil No. 1 at 100 deg. Fahr. gave concordant results at 210 deg. Fahr., and equally concordant results could be obtained with other tubes when the necessary

corrections were applied to the observed readings. The A. S. T. M. method D-88-23T was used in the determination of viscosity at 210 deg. Fahr., modified by heating the water bath by injection of steam. With an oil giving an average time of flow of 215.9 seconds at 210 deg. Fahr. the reported results, corrected when necessary, varied from 214.3 to 216.9 seconds. In a similar investigation in the chairman's laboratory, instruments of different designs and materials were used, with equally satisfactory results.

At a meeting of the committee in New York, March 27, 1924, it was decided:

1. That a water bath heated by injecting steam shall be used for the determination of viscosity at 210 deg. Fahr., the bath temperature, not exceeding 212 deg. Fahr., to be such as will maintain thermal equilibrium in the oil tube.

2. That Saybolt Universal viscosimeters shall be standardized at 100 deg. Fahr., keeping the water bath at such temperature, not exceeding 100.25 deg. Fahr., as will maintain thermal equilibrium in the oil tube.

3. That one oil (A. P. I. oil No. 1) shall be used for the standardization of the Saybolt Universal viscosimeters.

4. That the following table of corrections shall be used:

CORRECTION TABLE FOR SAYBOLT UNIVERSAL VISCOSIMETER

Corrections are in seconds for observed times up to 300 seconds. For observed times over 300 seconds corrections are in per cent.

Observed Time	Corrections to be Subtracted				KV Master Tube	Corrections to be Added			
	sec.	sec.	sec.	sec.		sec.	sec.	sec.	sec.
32	0.4	0.3	0.2	0.1	.0115	0.1	0.2	0.3	0.4
40	0.5	0.4	0.3	0.1	.0417	0.1	0.3	0.4	0.5
50	0.7	0.6	0.4	0.2	.0740	0.2	0.3	0.5	0.7
60	0.9	0.7	0.5	0.2	.103	0.2	0.5	0.7	0.9
70	1.2	0.8	0.6	0.3	.130	0.3	0.6	0.8	1.2
80	1.4	1.0	0.7	0.3	.156	0.3	0.7	1.0	1.4
90	1.6	1.2	0.8	0.4	.181	0.4	0.8	1.2	1.6
100	1.8	1.4	0.9	0.4	.206	0.4	0.9	1.3	1.8
125	2.4	1.8	1.1	0.5	.266	0.5	1.1	1.7	2.3
150	2.9	2.2	1.4	0.7	.324	0.7	1.4	2.1	2.8
175	3.4	2.5	1.7	0.9	.381	0.9	1.7	2.5	3.3
200	3.9	2.9	2.0	1.0	.437	1.0	2.0	2.9	3.9
225	4.4	3.3	2.2	1.1	.492	1.1	2.2	3.3	4.4
250	4.9	3.7	2.5	1.3	.548	1.3	2.5	3.7	4.9
275	5.4	4.0	2.8	1.4	.603	1.4	2.8	4.0	5.4
300	5.9	4.4	3.0	1.5	.658	1.5	3.0	4.4	5.9
Over 300	2.0%	1.5%	1.0%	0.5%		0.5%	1.0%	1.5%	2.0%

A single column of the table gives corrections for tubes which, at viscosities above 300 seconds, Universal, show a deviation from the Bureau of Standards master tube amounting to the value given in per cent at the bottom of the column. At lower viscosities the percentage deviation would be variable and the correction is given in seconds. When a tube is certified by the Bureau of Standards, the column of corrections applying to that particular tube is given on the certificate. This table of corrections was prepared by the U. S. Bureau of Standards and approved by the A. P. I. Committee on Viscosity Standards.

The general equation used in deriving the table is as follows:

$$KV = At - \frac{B}{t} \quad \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

and is applicable only to 125 seconds or the Saybolt Universal viscosimeter with the B value of 1.9 and A value of approximately 0.00226. At higher viscosities (above 200 seconds Universal)

$$KV = Ct \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

with C value of approximately 0.00220.

Between the regions where equations (1) and (2) apply, there is a region for which no equation has been found and therefore these values, as given in the tables, were calculated with the aid of diagrams.

5. That corrections corresponding to the proper column of the table, as outlined above, shall be applied at all temperatures of test.

Adopted by A. S. T. M.

The above recommendations of the A. P. I. Committee on Viscosity Standards, insofar as they refer to methods of test, have been incorporated in the proposed tentative method D-86-24T of the American Society for Testing Materials, and the committee feels that the question of standardization and operation of the Saybolt Universal viscosimeter is now in satisfactory form and that a convenient method is now available for the oil industry to check up all their instruments so that, in the future, no serious discrepancies will occur in reported results.

The situation with the Furol viscosimeter was not as serious as with the Saybolt Universal, due to the fact that the Furol was devised and put into practice only recently. Nevertheless, an investigation similar to that conducted in the case of the Saybolt Universal was carried out by the committee and is briefly described here.

A reference oil known as A. P. I. oil No. 210 was selected and distributed to the laboratories of members of the committee. When tested according to the A. S. T. M. Method D-88-23T, modified by specifying water bath at 122.25 and 122.50 deg. Fahr., the average time of flow was 186.1 seconds with a maximum of 187.8 and a minimum of 184.9, using instruments considered by the members as standard.

These tests were thoroughly discussed at a meeting of the committee in New York, March 27, 1924, and it was finally agreed to adopt the value of 186.0 seconds as the Viscosity Furol at 122 deg. Fahr. of A. P. I. oil No. 210, with the water bath at such a temperature (not exceeding 122.35 deg. Fahr.) as to maintain the oil in thermal equilibrium, 186.0 seconds being the average value on a Furol viscosimeter in good mechanical condition and conforming to the A. S. T. M. linear dimensions, with a room temperature of about 77 deg. Fahr.

The Bureau of Standards was accordingly asked to adjust a Furol viscosimeter tube to give a time of flow of 186.0 seconds on A. P. I. oil No. 210, using the same method of operation as had been used by the committee in obtaining this value. The tube, so adjusted, was examined by the committee and was found to give an average time of flow of 186.8 seconds with a maximum of 188.5 and a minimum of 186.0 seconds.

A. P. I. Oil No. 200 Used

As this particular oil was not exactly suitable for standardization work, due to the dark color, another oil, known as A. P. I. oil No. 200, was sent to the members of the committee. When tested in the adjusted Bureau of Standards tube, this new oil gave an average figure of 148.5 seconds, with a maximum of 149.5 and a minimum of 147.3 seconds.

By a letter ballot it was unanimously agreed that this tube (A30) should be regarded as the Bureau of Standards master tube for the standardization of all Furol viscosimeters, and 148.5 seconds should be considered the viscosity of A. P. I. oil No. 200 at 122 deg. Fahr. with a water bath not exceeding 122.35 deg. Fahr.

It was further agreed to indorse the practice of the Bureau of Standards of certifying the linear dimensions and time of flow of all Furol viscosimeters which they standardize. These certificates also specify the corrections to be applied. Certificates as to linear dimensions only are not to be issued.

It was also decided:

(1) That a water bath not exceeding 122.35 deg. Fahr. that will maintain thermal equilibrium in the oil tube shall be used.

(2) That the Furol viscosity shall be standardized at 122 deg. Fahr.

(3) That one oil (A. P. I. oil No. 200) shall be used for standardization of the Furol viscosimeters.

(4) That the following table prepared by the Bureau of Standards and approved by the A. P. I. Committee on Viscosity Standards shall be used for correction.

A single column of the table gives corrections for tubes, which at viscosities above 100 seconds, Furol, show a deviation from the Bureau of Standards master tube amounting to the value given in per cent at the bottom of the column. At lower viscosities the percentage deviation would be variable and the correction is given in seconds. When a tube is certified by the Bureau of Standards, the column of corrections applying to that particular tube is given on the certificate.

Equation (1) is applicable only to 40 seconds, with B value of 1.9 and A value of approximately 0.0224. At higher viscosities, above 80 seconds, equation (2) is applicable with C value of approximately 0.0216.

CORRECTION TABLE FOR SAYBOLT FUROL VISCOSIMETER

Corrections are in seconds for observed time up to 100 *seconds. For observed times over* 100 *seconds, corrections are in per cent.*

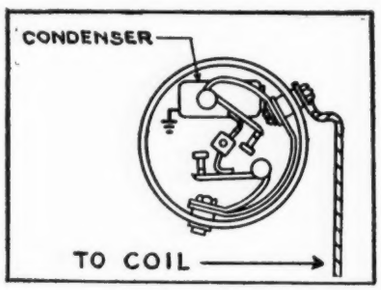
Observed Time	Correction to be Subtracted				KV Master Tube	Correction to be Added			
	sec.	sec.	sec.	sec.		sec.	sec.	sec.	sec.
25	0.5	0.4	0.2	0.1	.486	0.1	0.2	0.3	0.4
26	0.5	0.4	0.2	0.1	.512	0.1	0.2	0.4	0.5
27	0.5	0.4	0.3	0.1	.537	0.1	0.2	0.4	0.5
28	0.5	0.4	0.3	0.1	.562	0.1	0.3	0.4	0.5
29	0.6	0.4	0.3	0.1	.586	0.1	0.3	0.4	0.5
30	0.6	0.4	0.3	0.1	.610	0.1	0.3	0.4	0.6
35	0.7	0.5	0.3	0.2	.730	0.2	0.3	0.5	0.7
40	0.8	0.6	0.4	0.2	.846	0.2	0.4	0.6	0.8
45	0.9	0.7	0.4	0.2	.960	0.2	0.4	0.6	0.9
50	1.0	0.8	0.5	0.2	1.072	0.2	0.5	0.7	1.0
60	1.2	0.9	0.6	0.3	1.292	0.3	0.6	0.9	1.2
70	1.4	1.1	0.7	0.3	1.507	0.3	0.7	1.0	1.4
80	1.6	1.2	0.8	0.4	1.804	0.4	0.8	1.2	1.6
90	1.8	1.3	0.9	0.4	1.939	0.4	0.9	1.3	1.8
100	2.0	1.5	1.0	0.5	2.155	0.5	1.0	1.5	2.0
Over 100	2.0%	1.5%	1.0%	0.5%		0.5%	1.0%	1.5%	2.0%

The above recommendations of the A. P. I. Committee on Viscosity Standards, as far as they refer to methods of test, have been incorporated in the proposed Tentative Method D-88-24T of the A. S. T. M., and the committee feels that the question of standardization and operation of the Furol viscosimeter is now in satisfactory form and that in the future no serious discrepancies will occur in reported results.

Delco Brings Out New Double-Contact Distributor

A NEW design of semi-automatic distributor with two sets of contacts mounted at an angle of 45 deg. to each other and separating alternately has been brought out by the Dayton Engineering Laboratories Co.

Among the advantages claimed for the new design is a longer period of dwell during which the ignition coil has time to build up a greater magnetic field. In addition,



Circuit connections, new Delco double-contact distributor

only one ignition coil is employed, whereas two coils ordinarily are used with a double contact distributor.

This distributor is designated as No. 5282, and is factory equipment on the Diana Eight.

The circuit connections are shown in the accompanying diagram. The two sets of contacts are connected in parallel and are operated alternately by a four-lobe cam. They are so arranged and adjusted that they do not interfere with each other.

While one set of contacts is closed and primary current is building up the magnetic flux in the ignition coil, the other set being open at this time. Just before the latter set close, the closed contacts open and produce the high tension spark. Shortly thereafter the set of contacts which were originally open, close and the primary current flows through these contacts again building up the magnetic flux of the coil. Subsequently this set opens to produce a spark, and then the other set proceeds to close.

In other words, the primary current flows first through one set and then through the other set of contacts, giving a longer period between each spark, during which the primary circuit is carrying current. A spark is produced, of course, for every 90 deg. of crankshaft rotation.

A PANEL board for use in the manufacture of doors for automobile bodies is manufactured by Wm. A. Bense, 111 Summer Street, Boston, Mass. It is claimed to be unaffected by atmospheric changes and by direct contact with water, and therefore non-warping. Although it is decidedly stiff, which is an advantage in this class of work, it is easily cut and stitched.

This panel board is made from wool, cotton and kraft fiber, impregnated with resins, waxes and pitches, which are incorporated in the board in the process of forming. It is claimed that this process gives positive waterproof qualities which are not obtainable by soaking a fiber board in oil or asphalt. The cost is said to be less than that of plywood.

Double-end Automatics Designed for Threading and Chamfering Operations

Both machines are self-contained and equipped with magazine feed. Capable of handling variety of work. Easy to operate.

By W. L. Carver

TWO automatic machines of value to the automotive industry are built by the Grant Manufacturing & Machine Company of Bridgeport, Conn. Fig. 1 illustrates a double-end machine for threading both ends of studs simultaneously, while Fig. 2 shows another double-end machine which is adapted to facing, chamfering and similar operations on bushings, pins, etc.

Both of these machines are self-contained and equipped with magazine feed, and both are capable of handling a considerable range of parts as determined by diameter and length.

In the stud-threading machine, Fig. 1, a sliding head at each end of the bed carries a quick-acting collapsible die, which is opened and closed by an adjustable draw rod extending through a bracket at the outer end of the machine. Each of these heads is cam operated, the cam being designed to produce the correct lead and length of thread as well as to return the die head to the loading position of the machine. From the magazine parts are transferred by segmental plates equipped with spring fingers to the clamping fixture, which also is operated from the camshaft. The segmental loading device acts as a stop for the magazine during the tapping operation and may be adjusted for studs of varying length. Drive for the loading device is taken from a train of gears at the right end of the machine, as shown.

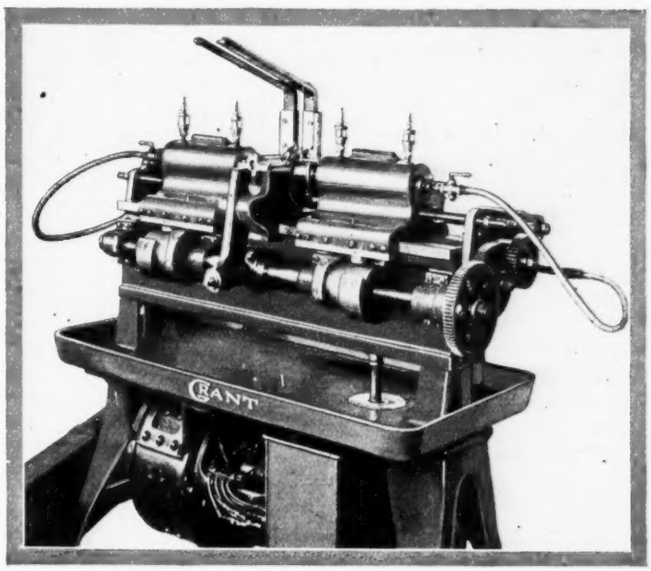


Fig. 1—Double-end stud threading machine equipped with magazine feed and completely cam controlled

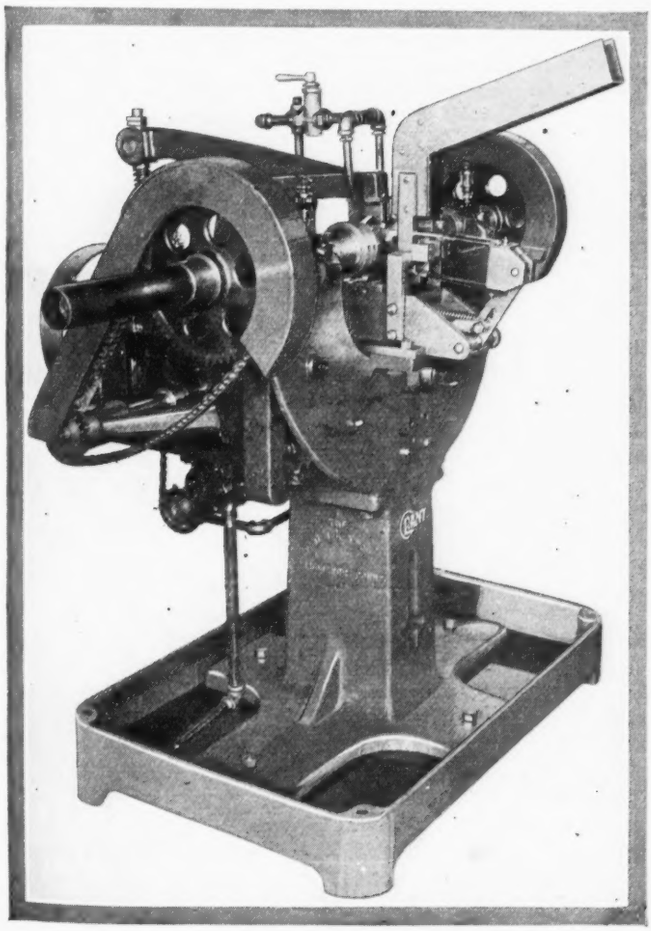


Fig. 2—Double end machine for chamfering, facing or counterboring bushings, piston pins, etc.

A coolant pump also is driven from the gear train and the machine proper is mounted in a cast iron pan which drains into the sheet metal coolant tank below. A small electric motor, which is bolted under the pan in an inverted position, drives the main shaft through an inclosed silent chain. While the machine is capable of handling several sizes, production in one shop has been at the rate of 25 pieces per minute when cutting ⅜ in. diameter, 24 pitch threads for a length of ½ in. on both ends of the blank. Due to the cam operation of the heads, threads of S. A. E. dimensions may be cut at one end of a stud simultaneously with those of U. S. S. dimensions at the other.

The chamfering machine, Fig. 2, is similar in general principles to the threading machine in that the various components are coordinated by the use of cams. However, in this case the segmental loading device is replaced by the familiar slide type. Again work heads are brought up and retracted by cams, but in this case the cutter head carries opposed pairs of facing, chamfering either inside or outside, counterboring or any combination of these tools. As designed at present, three pairs of tools can be mounted on the cutter head.

New Automatic Shift Partly Eliminates Selecting Operation

Device works on mechanical principle and effects shifting during return stroke of pedal. No selecting required for going from intermediate into high and vice versa.

A COMPARATIVELY simple device for shifting gears automatically has been brought out by the U. S. Automatic Shift Co. of Madison, Wis. Combined with the automatic shift is an automatic synchronizing unit which equalizes the pitch line velocities of the gears to be meshed, thus obviating clashing.

In 1918 an hydraulic gear shift was developed by this company and placed on a production basis. This comprised a combination of pistons selectively operated by a master valve. The unit was installed as an accessory, and as such was sold to a considerable number of car owners. With this unit the gears were meshed during the down stroke of the pedal, and this feature was found to be unsatisfactory. In the words of the manufacturers, "under certain conditions selection became confusing." Presumably this means that if an emergency arose which made it necessary to shift to a lower gear and the driver had not set the selector for the lower gear previously, he would disengage the clutch before completing the selection.

The hydraulic shift was followed by a mechanical shift which was so designed that it would fit all makes of car, and which effected the shifting during the return stroke of the clutch pedal. Of this model several thousand were built and a large number installed on cars of thirty different makes. In time, efforts were made to interest automobile manufacturers in this device. Several firms actually experimented with it, but it was found to contain a number of inherent disadvantages. To some engineers the mechanism did not appear rugged enough, while others objected to loading the clutch pedal with it. A normal stroke of the clutch pedal resulted in an excep-

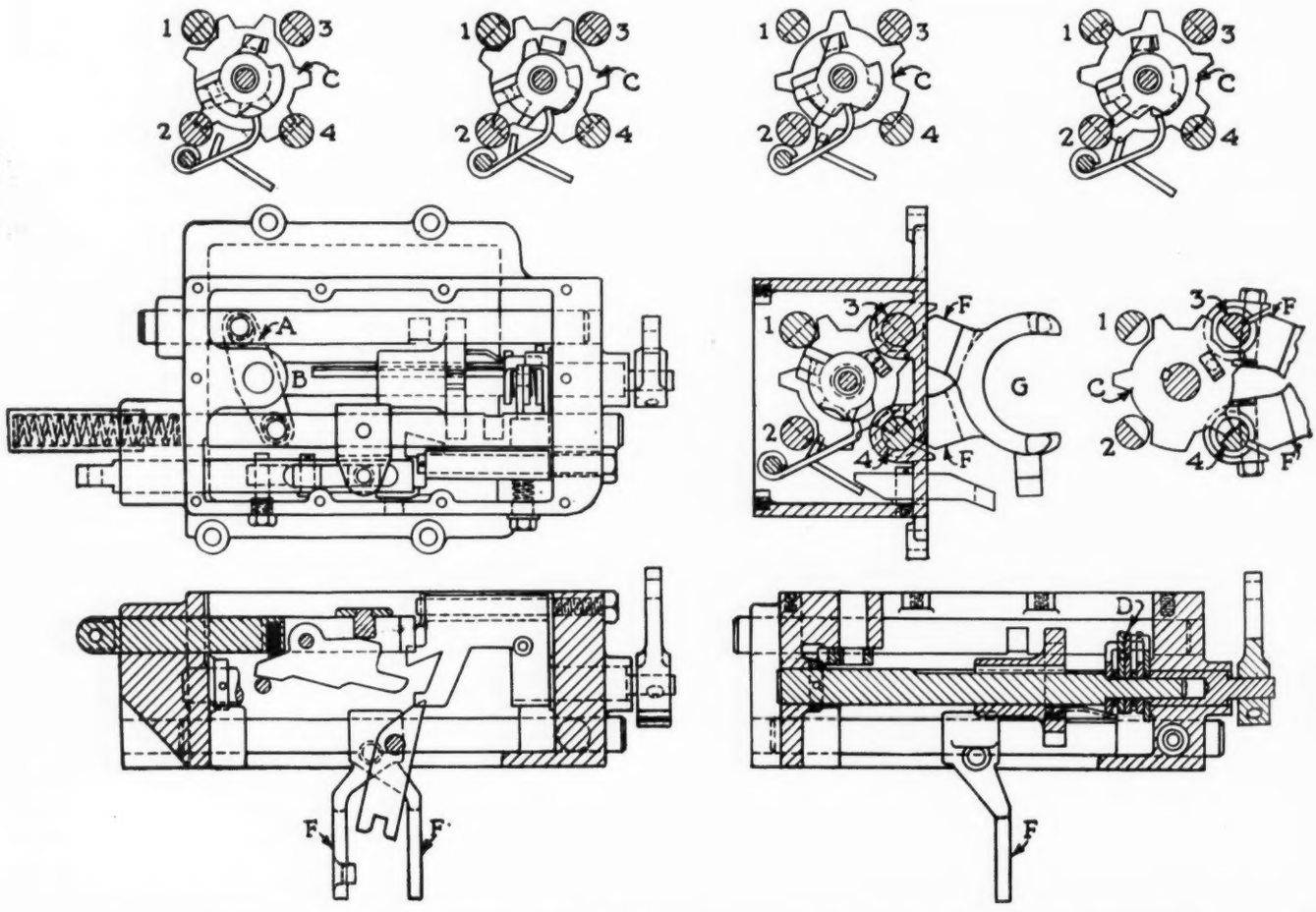


Fig. 1—Assembly views and diagrams showing different positions of the U. S. Automatic gear shifter

tionally quiet change while changing up, but to shift down quietly called for considerable experience, as the engine had to be raced to spin the clutch at the proper speed. We are informed, however, that in spite of these shortcomings many of the gear shifts are still in use today and are giving satisfactory service to car owners.

The present model of the U. S. Automatic Shift Co., which is based on experience gained with the former designs and constructive criticism by automobile engineers, consists of a rectangular casting in which three are four rugged sliding rails, *1*, *2*, *3*, *4*, extending the length of the casting and whose axes form the corners of a square. The two lower rails, *3*, *4*, carry the shifting forks *F*, *F*, and are located in about the same positions as the two slider bars in the transmission cover with hand operation. The two upper ones, *1*, *2*, are caused to each make a full reciprocation on every full stroke of the clutch pedal, being connected together by the double armed lever *A*.

45 Deg. Transverse Slots

All four rails have 45 deg. transverse slots cut in them, and when the clutch pedal is pressed all the way down these slots are all in one plane. Mounted centrally between the four sliding rails is a shaft, *B*, carrying a rotary selector, *C*. On this selector there are projections or teeth which are so arranged that for any position of the selector lever at the steering wheel a locking action takes place between one upper and one lower rail. Rotary motion of the selector occurs only when the notches have been brought to one common plane. As the pedal is returned, motion of the upper rail is transmitted through the selector to the proper lower rail, thereby effecting a gear change. The selector then is locked from turning and is used to subsequently return the gears to neutral on full depression of the pedal. A semi-flexible jaw *D* on the end of the selector shaft *B* permits of selection at the wheel even though some other gear position is engaged. It will also be noted that when the pedal has been pushed out the selector is free to assume any other position, and on the return of the clutch pedal the selected gear change is at once accomplished without requiring an additional stroke of the pedal.

Further, the selector *C* carries a cam *G* that coacts with the semi-flexible jaws on the selector shaft, so that when the second speed gear is being meshed the high gear position is automatically predetermined. On subsequent full depression and return of the clutch pedal, the gears are shifted from second to high without a selecting manipulation being required. Another full depression of the pedal again destroys high speed selection and causes the second gear to be meshed again. This automatic selective feature is claimed to be very useful for operating the car in dense traffic, at stop signals, on hills and in sand, where the required shifting can be done quickly without the use of the hands.

Synchronizer Developed

To give the car operator the greatest degree of confidence in shifting, the Sliding Gear Synchronizer has been developed. One application is shown in Fig. 2. It consists of an auxiliary shaft driven from the main shaft and carrying a beveled friction wheel which makes contact with a corresponding beveled wheel on the clutch shaft when the clutch pedal is at and near the end of the stroke. With the clutch pedal in this position, since the clutch is open and the gears are in neutral, the auxiliary shaft causes the clutch to spin when the car is in motion. Since the auxiliary shaft is driven from the main shaft of the transmission, the speed of the clutch shaft is proportional to the speed of the car and to the effective diameters, or, rather, to the ratios of the gear and the friction wheels.

The jaw clutch *A* locks the small drive gear *B* to the synchronizing shaft *C* for all changes except the one from second to high. For this latter change the larger gear *D* is locked to the shaft by means of *A*. When the small gear acts as driver and friction contact is made at the forward end, then if the car is in motion the clutch shaft will be spun at such a speed that the pitch line velocities of the intermediate gear and pinion are very nearly the same. When the large gear drives, then the two elements of the direct drive clutch are spun at the same speed. As a result, such gear changes can be made quietly and no precautions are required.

This synchronizer, then, causes the clutch shaft to spin in accordance with the car speed and independently of the

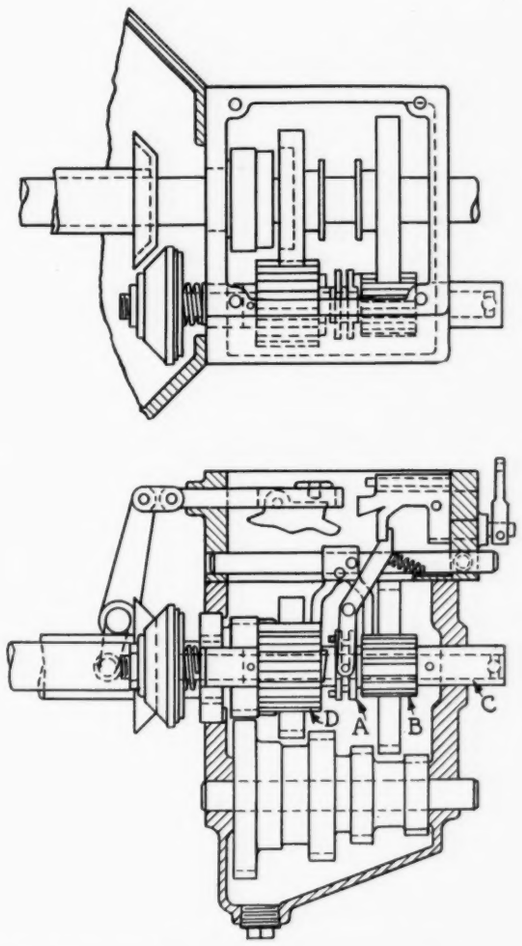


Fig. 2—U. S. full automatic synchronizer assembly

engine speed. As a result the mating gears are both driven in proportion to the car speed and equally good results are obtained in shifting at 5 as at 25 m.p.h., it is claimed, no matter whether the operator "races" the engine or permits it to idle.

Among the advantages claimed for the automatic gear shift by the manufacturers are that it enables anyone, even the unskilled, to shift rapidly and quietly; any shift of gear can be made without removing the hand from the steering wheel, which promotes safety. The intermediary gear always can be engaged on down grades and the engine used for braking, which is another safety feature. It adds to the comfort and convenience of the driver and it removes the obstruction of the gear level from the front compartment. Because of the ease of shifting, the lower gears will be used more on hills and the engine saved in consequence.

Exports of Cars, Trucks, Tires and Parts for

COUNTRIES	GASOLINE PASSENGER CARS										TRUCKS					
	Up to $500		$500 to $800		$800 to $1200		$1200 to $2000		Over $2000		Up to 1 ton incl.		1 to 2½ tons		Over 2½ tons	
	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value
Austria					1	$987	4	$6,781	1	$2,738						
Azores and Madeira Islands	14	$5,603	1	$898	2	$2,003	2	3,797			6	$4,961				
Belgium	48	17,595	79	49,827	64	66,529	38	54,365	15	36,359	96	38,028				
Bulgaria					2	1,826										
Czechoslovakia					5	5,223	5	7,460								
Denmark	1,104	409,916	64	49,170	62	62,426	13	19,543	1	2,720	425	169,997	6	$7,945	16	$99,392
Esthonia					1	864										
Finland	26	12,325	52	39,673	54	57,366	14	19,087	2	4,656			3	5,371		
France			1	846	43	48,710	42	63,066	7	18,900			1	979		
Germany	5	2,406	16	13,608	46	48,386	85	132,978	27	68,163			10	12,367		
Gibraltar																
Greece	3	1,125	5	3,829	25	25,784	13	18,954	3	7,258			1	987		
Hungary			2	1,463			1	1,476					1	2,453		
Iceland and Faroe Islands							2	2,744								
Italy	250	102,044	5	3,946	4	3,405	1	1,773	2	6,530	316	80,988				
Latvia	1	594	2	1,729	3	3,209	6	9,913	1	2,116	1	475	1	999		
Lithuania																
Malta, Gozo and Cyprus Islands							1	1,363								
Netherlands	9	977	27	18,969	102	103,022	67	102,593	8	26,163	4	2,300	12	28,166	4	9,609
Norway	32	13,952	21	15,228	53	53,551	9	12,543			4	5,068	6	6,234		
Poland and Danzig			5	3,904	23	23,411	20	28,305	2	5,630	2	1,022				
Portugal	70	38,972	17	12,309	43	47,955	34	49,624			3	1,500				
Rumania			1	779	22	24,059	13	18,777	3	7,896						
Russia	9	799							1	3,422	17	6,868				
Spain	119	49,152	133	99,682	162	178,886	89	138,935	15	44,322	70	23,566	6	6,729		
Sweden	7	3,115	161	125,207	264	267,960	61	94,074	5	12,309	4	3,825	16	16,087		
Switzerland			15	12,058	87	95,584	28	41,982	21	51,248						
Turkey							2	2,836								
United Kingdom	256	113,591	1,582	1,087,396	952	1,021,827	801	1,165,870	69	181,857	1,237	553,535	66	69,511	2	5,201
Irish Free State			54	41,110	6	6,576	4	7,186			2	1,288	2	2,143		
Yugoslavia, Albania, etc.			2	1,649	3	3,024	5	6,860								
United States																
British Honduras																
Canada	1	225							1	3,305						
Costa Rica	326	80,821	941	634,983	897	883,949	395	567,042	116	318,951	89	75,382	212	316,481	28	61,312
Guatemala	2	810	5	3,654	5	4,753					2	948	3	3,667		
Honduras			1	759	14	15,211	13	29,431					5	10,233		
Nicaragua	4	1,417	4	2,937	1	900	1	1,573			2	1,051				
Panama							1	1,715								
Salvador	14	6,234	12	9,078	13	13,955	19	27,954			4	3,100	2	2,549		
Mexico	9	530	3	2,030	3	3,567	4	7,910	4	9,923	2	1,554	3	6,604		
Miquelon, etc.	498	172,577	140	98,083	223	223,404	51	77,595	12	33,522	149	67,768	52	50,541		
Newfoundland																
Barbados	26	11,900	7	5,512	8	8,591	3	4,367			1	225				
Jamaica			2	1,022	2	2,230	1	1,270								
Trinidad and Tobago	24	8,708	14	10,489	8	8,846	1	1,372			8	2,664	3	4,135		
Other British West Indies	7	3,660	6	3,995	2	1,997	2	2,898			5	2,866	1	1,110		
Cuba	17	6,512	3	2,040	3	3,117					2	752				
Dominican Republic	514	168,880	110	78,904	85	83,156	45	62,661	26	75,638	141	38,451	11	17,688	10	23,697
Dutch West Indies	48	17,848	6	4,372	4	4,305					11	3,872			4	11,279
French West Indies			4	3,158	4	4,843	1	1,599			2	1,104				
Haiti											5	1,977				
Virgin Islands	18	8,013	15	12,288	13	13,525	5	7,493	1	2,190	4	1,991	4	5,139	1	1,369
Argentina			1	825			1	1,397								
Bolivia	1,875	491,688	260	193,594	201	217,769	139	208,593	49	117,398	106	54,463	47	79,534	9	26,640
Brazil			6	4,465	12	13,733	4	6,582	2	5,000	12	5,822	3	5,931		
Chile	539	189,756	172	134,400	330	329,438	41	62,844	35	101,557	529	212,519	10	19,352	5	16,148
Colombia	3	1,143	24	18,733	17	20,019	9	12,884	3	10,694	159	61,529	18	39,110	6	27,594
Ecuador	40	14,150	26	19,141	22	25,167	42	63,314			11	11,077	40	31,326	6	25,310
British Guiana			1	604			4	6,102					1	2,725	1	1,174
French Guiana			2	1,367	5	5,173	1	1,517								
Dutch Guiana																
Paraguay	1	380														
Peru	3	1,473									9	3,620				
Uruguay	55	20,122	6	4,784	28	32,447	7	10,624	3	10,965	114	45,107	48	71,402	8	13,575
Venezuela	405	127,398	38	27,968	32	33,448	27	41,184	1	2,035	147	38,307	5	6,457	4	9,026
Aden	55	21,560	21	14,746	43	45,011	18	26,774	5	11,456	46	28,949	12	19,116	2	10,043
British India																
Ceylon	71	30,659	69	52,940	61	63,762	1	1,572			4	3,474			5	7,122
Straits Settlements	8	3,600			12	12,894					16	14,993	15	21,295	6	8,598
Other British East Indies	15	5,804	3	2,422	25	23,145							1	1,138		
China																
Chosen	35	10,864	12	9,108	33	37,068	9	12,352	3	9,636			4	4,286		
Java and Madura			1	595												
Other Dutch East Indies			92	74,166	24	26,592	10	15,402	1	2,500	9	1,327				
French Indo China			24	18,879	5	5,468	11	19,042	1	3,369	6	3,622	6	5,361		
Hejaz, Arabia and Iraq	1	497	6	4,384							5	1,760				
Hongkong	49	14,016			2	2,263										
Japan	10	3,600	2	1,703					1	2,500	10	4,040	1	1,500		
Kwangtung	46	21,422	13	8,459	25	25,174	28	42,805	8	23,297			2	5,738		
Palestine and Syria													1	1,336		
Persia	115	38,759	11	8,209	13	13,745	18	25,604	1	2,033	1	664				
Philippine Islands	11	3,696														
Russia	198	76,794	38	34,692	23	25,262	12	16,761	6	15,485	157	56,221	21	31,214	4	9,437
Siam	5	2,663														
Turkey	4	1,808	1	785												
Australia			2	1,527												
New Zealand	985	363,158	1,678	1,115,216	1,015	1,080,091	277	428,465	10	24,929	231	128,214	78	91,548	24	81,164
British Oceania	298	143,967	178	126,201	324	345,585	118	165,676	5	21,697	17	13,952	29	40,911	8	15,164
French Oceania	2	982	1	784							6	3,000				
Other Oceania	1	350	1	600	4	3,650	2	3,445								
Belgian Congo																
British West Africa	2	824	1	528												
British South Africa	5	2,165	7	4,490	14	14,744										
British East Africa	74	32,642	386	290,736	539	589,828	38	56,342	1	2,602	21	22,697	66	70,438		
Canary Islands	34	16,450	4	3,029	34	35,618	1	1,390			28	24,418	35	39,719		
Egypt	6	2,262	4	3,496	9	9,896	12	17,468	1	2,602	1	500	1	2,720		
Algeria and Tunis			4	3,320	7	7,773	2	3,254	1	2,590	15	6,225	3	4,477		
Other French Africa					1	1,207							2	1,209		
Italian Africa																
Madagascar											13	7,150	8	8,721		
Morocco																
Portuguese East Africa	51	18,488	1	869	1	1,162	1	1,372								
Other Portuguese Africa	3	900	9	7,041	9	10,347					2	1,000	2	2,219		
Spanish Africa	2	1,108			4	4,680										
			1	784												
Total	8,542	$2,916,084	6,624	$4,651,967	6,188	$6,491,078	2,735	$4,051,347	473	$1,300,942	4,270	$1,852,786	886	$1,186,874	153	$432,665

May, 1925 — Canadian Exports

ELECTRIC VEHICLES		PARTS	TIRES						PASSENGER CARS						TRUCKS		PARTS	COUNTRIES
			Casings		Inners		Solids		Up to $500		$500 to $1000		Over $1000					
No.	Value	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	Value	
		$768	20	$431	20	$44												Austria
		696	16	98														Azores and Madeira Islands
		45,559	1,333	27,783	865	2,514	2	$66									$5,735	Belgium
		2,208							4	$1,593								Bulgaria
		2,537	292	4,227	259	504	25	756										Czechoslovakia
		151,875	16,545	142,859	15,635	16,478	50	1,538			2	$1,216					28,674	Denmark
					30	86												Esthonia
		7,345	937	13,549	971	1,875					12	8,595			1	$349		Finland
		242,968	1,656	18,374	640	1,650												France
		44,605	525	10,945	380	1,450					4	3,007					37	Germany
		2,160																Gibraltar
		9,345	1,324	18,955	1,305	2,499	87	2,269	37	16,033			1	$1,770				Greece
		361	29	558	12	26											8	Hungary
		340	68	986	366	543												Iceland and Faroe Islands
		30,218	574	6,089	414	594	82	2,275									2,380	Italy
		912	356	4,692	382	759	10	148										Latvia
		36																Lithuania
		605							9	3,664							116	Malta, Gozo and Cyprus Isls.
		67,262	3,346	58,006	1,948	4,076	12	255	1	435	5	4,702					92	Netherlands
		20,947	3,458	46,745	1,349	3,334	202	8,822	1	406	2	1,472						Norway
		4,602	169	2,117	238	452												Poland and Danzig
		8,930	577	8,788	708	2,486	28	963										Portugal
		1,531	45	817	50	132			19	7,654								Rumania
		508	42	1,133	85	325												Russia
		68,075	1,810	25,531	1,046	1,902	169	6,115									15	Spain
		82,750	7,760	112,713	7,916	13,291	21	941	45	18,162	8	5,212					148	Sweden
		5,416	609	14,087	485	2,022	4	283			6	5,680					63	Switzerland
		1,910																Turkey
5,201		718,050	13,495	167,986	9,894	15,428	2,878	54,877			31	27,104	2	3,300	152	26,581	25,208	United Kingdom
		14,743	100	462														Irish Free State
		740	6	110					17	7,134	2	1,178						Yugoslavia, Albania, etc.
									5	1,300							52,892	United States
		315	26	314	16	36												British Honduras
61,312	12	$13,222	4,648,863	1,562	20,166	1,240	2,998	104	3,462									Canada
		2,303	73	1,421	119	318			5	1,965							85	Costa Rica
		4,762	225	3,981	375	783												Guatemala
		5,691	181	3,546	139	347												Honduras
		904	160	2,695	222	540												Nicaragua
		8,722	910	11,825	1,706	2,670	4	66									12	Panama
		8,465	602	9,621	715	1,373	48	1,402									33	Salvador
	6	13,155	134,748	6,902	74,339	11,951	29,288	191	5,954								1,050	Mexico
			64														48	Miquelon, etc
			2,778	205	2,794	180	318			6	2,195	1	528			2	584	140	Newfoundland
			3,922	93	975	82	120			4	1,674	1	631						Barbados
			7,215	174	2,340	115	198	59	1,318	9	3,671	6	5,182					4	Jamaica
			7,211	74	1,060	78	285	3	117	12	4,137					13	4,156	118	Trinidad and Tobago
			5,285	70	855	38	90					1	849					142	Other British West Indies
23,697			103,780	9,304	86,164	10,220	13,377	2,065	48,021					14	16,813			34	Cuba
11,279			11,679	1,419	16,439	1,354	2,268	72	2,293										Dominican Republic
			1,073	212	2,673	190	324	2	33	2	829								Dutch West Indies
1,369			1,802	149	1,632	42	108	18	300										French West Indies
			6,355	423	6,577	740	1,423	10	151										Haiti
26,640			197	4	25	54	269												Virgin Islands
			462,846	17,137	179,444	17,183	21,612	227	8,880	204	82,212	74	61,964	16	19,225	1	346	80,445	Argentina
16,148			4,178	9	113	8	18	18	731	24	9,358	5	4,512	28	35,930				Bolivia
27,594			458,903	20,605	204,738	10,867	19,015	200	4,388	4	1,624	152	125,323	54	61,740			31,471	Brazil
25,310			98,645	1,925	35,445	700	1,432	12	512			1	873	2	2,293				Chile
1,174			41,083	1,176	18,469	2,307	4,637	30	1,003	12	4,940	1	628					7	Colombia
			2,174	147	1,541	132	251											35	Ecuador
			2,887	4	175	6	41	6	99	26	8,193							125	British Guiana
			80																French Guiana
			75	20	233	64	117												Dutch Guiana
			1,245							4	1,662								Paraguay
13,575			66,384	1,377	21,460	2,440	4,749	23	978	10	4,079	4	3,556	1	1,770				Peru
9,026			49,478	1,748	19,444	1,113	1,785	48	1,693	70	30,090	15	12,007	7	8,281				Uruguay
10,043			29,217	1,971	21,605	2,216	4,348	6	135	26	14,556	1	608						Venezuela
			13																Aden
7,122			53,743	1,259	14,087	922	1,451	215	5,157	452	171,680	24	16,936	2	2,410	72	25,429	34,607	British India
8,598			6,573	261	3,681	220	495	14	534	44	16,894	9	7,530	1	1,012	12	3,864	6,282	Ceylon
			39,446	1,832	15,867	97	198	196	3,141	355	123,405	8	5,443			78	25,710	17,887	Straits Settlements
			540																Other British East Indies
			21,016	563	4,716	385	651	94	1,287	18	7,494	13	9,077	11	15,172			2,852	China
			376	81	698	100	133												Chosen
			36,908	1,581	17,854	639	951	162	5,038	343	111,846	41	34,366	23	27,450	70	23,651	659	Java and Madura
			8,759	246	2,968	222	372												Other Dutch East Indies
																			French Indo China
			1,486	200	1,736	259	361			7	2,787	3	2,579	7	7,834			120	Hejaz, Arabia and Iraq
			8,506	320	3,121	253	374												Hongkong
			152,722	6,165	56,840	5,003	6,501	288	4,792	58	23,467	39	32,209	17	21,718				Japan
			83																Kwangtung
			6,791	777	10,006	1,134	1,964	2	28	5	2,159								Palestine and Syria
9,437			53																Persia
			22,642	6,577	65,580	7,357	11,948	465	11,176										Philippine Islands
																			Russia
			2,748							23	6,694	3	1,748			36	11,592	8,081	Siam
			441	8	170	8	27												Turkey
81,164			320,023	7,533	110,904	6,080	14,654	2,216	55,626	974	284,953	56	28,908			482	163,983	41,982	Australia
15,164			79,785	4,071	52,014	4,112	6,359	629	17,014	209	86,944	99	72,421	7	8,438	48	17,496	14,121	New Zealand
			1,243	20	237	20	47											41	British Oceania
			1,675	72	1,189	88	138	4	109										French Oceania
			1,479	56	721	66	118			14	4,332							532	Other Oceania
			1,653																Belgian Congo
			14,901	181	2,698	116	266			36	9,890					24	8,238	3,192	British West Africa
			122,073	2,217	21,621	2,868	3,371	146	2,800	613	237,596	20	12,087			106	41,152	23,586	British South Africa
			9,624	110	1,329	15	23	4	116	45	16,711	3	2,062			18	6,816	8,014	British East Africa
			3,234	329	4,552	179	335	1	29	17	6,813	1	632						Canary Islands
			7,540	409	3,860	249	516	52	1,207									137	Egypt
			6,821																Algeria and Tunis
			7,314	10	72	11	33			2	912								Other French Africa
			167																Italian Africa
										1	330								Madagascar
			11,618	10	235	20	49			1	403								Morocco
			13,835	24	772	26	91			4	1,725					5	1,622		Portuguese East Africa
			1,202																Other Portuguese Africa
			233	11	167	16	28												Spanish Africa
18	$26,377	$8,687,388	158,302	$1,837,845	142,107	$239,062	11,204	$268,898	3,787	$1,344,511	653	$500,735	193	$235,156	1,120	$361,569	$391,213	Total

Automotive Industries
July 23, 1925

Door Control for Buses Is Interlocked with Air Brake System

Pneumatically-operated doors on new Kansas City buses can be opened only when brakes are set and must be closed before bus will start. Brakes apply if driver releases wheel.

By P. M. Heldt

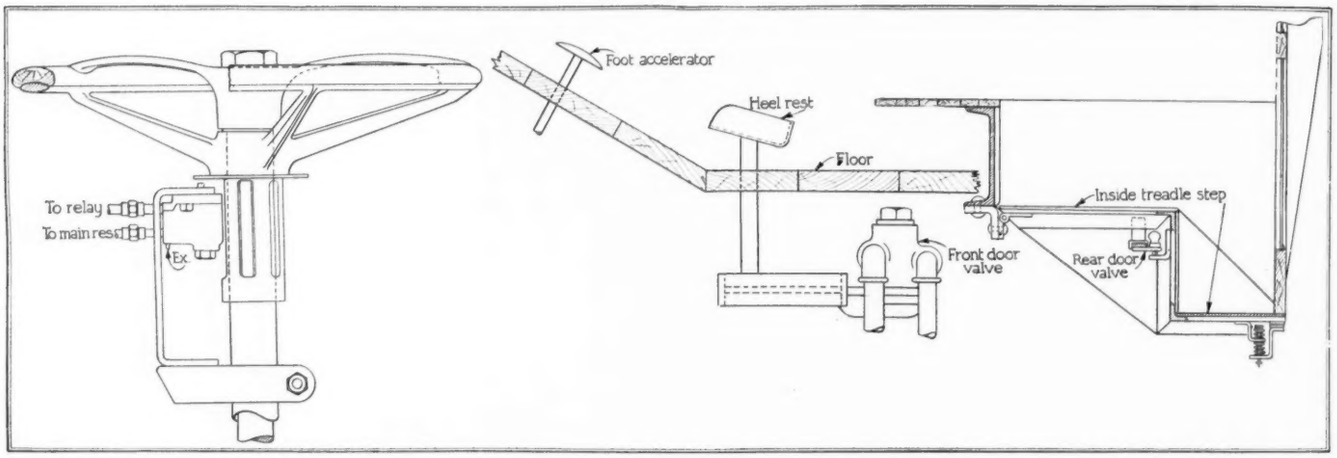


Fig. 1—Control elements on Kansas City buses

ONE of the most important safety devices introduced in bus operation in recent years was the safety door, which the driver opened and closed from his seat. This made it impossible for passengers to enter or leave the bus before the latter stopped, provided, of course, the driver operated the door in accordance with instructions.

A further step forward in safety features has now been taken by the Kansas City Railways, which a short time ago decided to install a considerable number of buses of different types in services supplementary to that rendered by the street cars. The new buses will be operated on through and express lines for the most part, and it is planned to maintain quite fast schedules. In order to insure the highest degree of safety and still provide rapid transit the company has worked out a new system of control which is designed to prevent passengers from getting on and off while the bus is in motion and to stop the bus automatically in case the driver is incapacitated.

Safety control is effected by means of compressed air, the system being tied up with the Westinghouse air brake installation. Hand operated diaphragm type brakes will be used, and the air for the system will be supplied by a Westinghouse 6 cu. ft. compressor, driven direct from the engine in a manner best adapted to the different designs.

To be able to maintain a fast schedule, the circulating system of handling passengers was adopted, all passengers entering through the front and leaving through the rear.

The front door is opened and closed by air pressure controlled by means of a foot button. On the steering column just below the wheel is located an emergency pilot valve (see Fig. 2) which is held closed by a spring. It is opened by means of a cast aluminum hand wheel of the same diameter and concentric with the steering wheel. The rim of the steering wheel is recessed on the under side in such a manner that when the aluminum wheel is moved up to it by the driver's grip the two rims together have practically the same shape as the ordinary steering wheel rim (Fig. 1).

The air brake valve is operated by hand, which leaves the driver's foot free to control the front door. An additional advantage in hand control of the brake is thought to lie in the fact that it is more sensitive and prevents jerky and too harsh application. Hand control also enables the driver to set the brakes on a hill, if necessary, and leave the vehicle.

Must Set Brakes to Open Doors

Opening of the doors, both front and rear, is possible only after the brakes have been set. While opening of the front doors is effected by the driver by means of the foot button operated valve, the rear door is opened by the passenger who wants to alight, by stepping on a treadle in the step just inside the door, after the driver has first set his control valve in the door opening position. The rear door closes automatically after all passengers have cleared the step.

If at any time the driver releases his grip on the rim of the steering wheel when the brakes are not set or not fully set, the brakes will be automatically applied by the emergency mechanism and the doors at both ends will be released so that they can be opened by pushing against them.

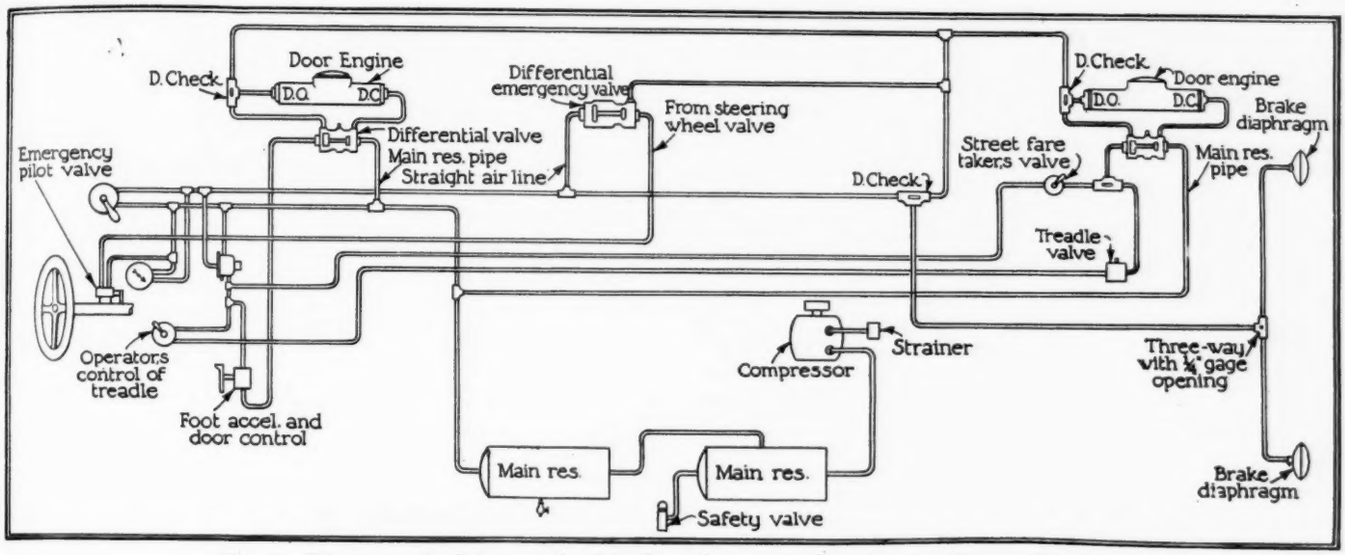


Fig. 2—Diagram of piping used with the safety control system on Kansas City buses

As long as the driver retains his grip on the steering wheel, even though only with one hand, as in shifting gears, the pilot valve is held closed. If he releases his grip without first setting the brakes, the pilot valve will open and will energize the emergency relay valve, of which a sectional view is shown in Fig. 3. This relay valve has a pressure diaphragm on top and a pressure cylinder at the bottom. The brake line is in communication with the upper diaphragm chamber and when there is considerable pressure in this line admission of air to the pilot valve has no effect, as the diaphragm is of larger diameter than the piston and overpowers it. On the other hand, if there is little or no pressure in the brake line, admission of the air to the pilot valve will result in forcing the piston in the lower part of the relay valve up, thereby opening a port in the cylinder wall through which the air can flow directly to the brake chambers and the opening sides of the door engines.

Air flows to both the brakes and the door engines through double check valves. It applies the brakes and balances the doors so they can be pushed open by hand. The brakes having been set by the emergency device, the system can be returned to the normal condition by lifting the safety control wheel or by admitting air to the brake line by means of the brake valve. The doors also will again be locked and opened by the air.

For opening the doors, use is made of a device referred to as a door engine. On its way to the door engine the air has to pass through a relay valve shown at the left in Fig. 4. This relay valve also comprises a diaphragm chamber, one side of which is connected to the brake line. The diaphragm acts upon an air valve, so that when there is pressure in the brake line the valve is opened and air can flow from the reservoir to the door engine, whereas when there is no air in the brake line, that is, when the brakes are off, the air cannot get through this relay valve and the doors cannot be opened.

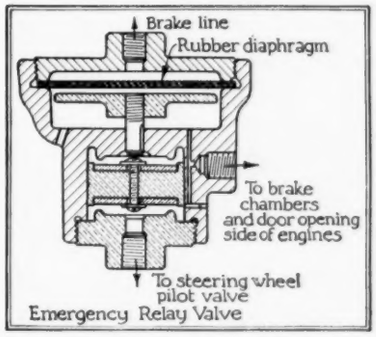

Brake line
Rubber diaphragm
To brake chambers and door opening side of engines
To steering wheel pilot valve
Emergency Relay Valve

Fig. 3 — Emergency relay valve which applies brakes and unlocks doors when driver is incapacitated

From the relay valve the air passes to a differential control valve for the door engine, shown at the middle in Fig. 4. This contains two co-axial plungers of different

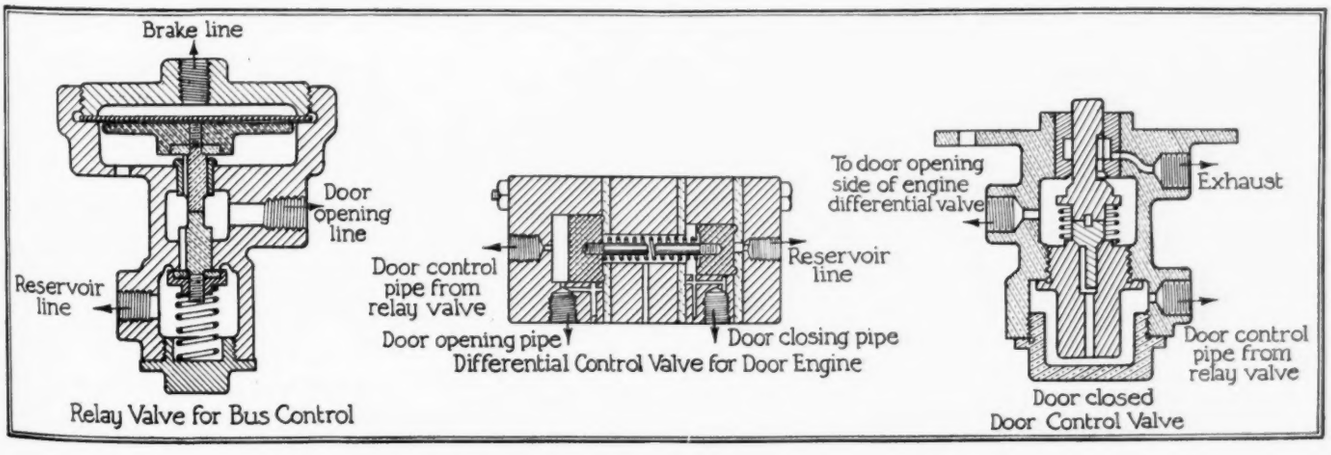


Fig. 4—The three valves used in the safety door control system of the buses

diameters. The chamber of the smaller plunger is connected to the reservoir line while that of the larger plunger is connected to the relay valve. The two plungers form piston valves which admit air to the door closing and door opening pipes respectively. If air is admitted through the relay valve the larger plunger overpowers the smaller one and both move to the right, admitting air to the door opening pipe and at the same time venting the door closing side. When no air comes through from the relay valve the reservoir pressure forces both of the plungers to the left and holds the door closed.

A third valve completes the control mechanism of the safety doors—a driver's foot controlled door valve, which is connected in the line between the relay valve and the differential control valve. This is shown at the right in Fig. 4. There is a similar valve in the line from the relay valve to the differential control valve on the rear door, this valve being operated by means of the treadle on the rear step. Referring to the sectional view of the door control valve, which is shown in the position corresponding to closed doors, when the driver presses down on the valve button or the passenger steps on the treadle, the valve establishes communication from the relay valve to the door opening pipe and the door will then open. On the other hand, if the driver removes his foot from the button or the passenger steps off the treadle the line through the door valve is open and the door will be closed. The line to the rear door valve, however, passes through a hand valve near the driver's seat and the driver must open this before the rear door will open. This hand valve returns to the closed position automatically when the brakes are released.

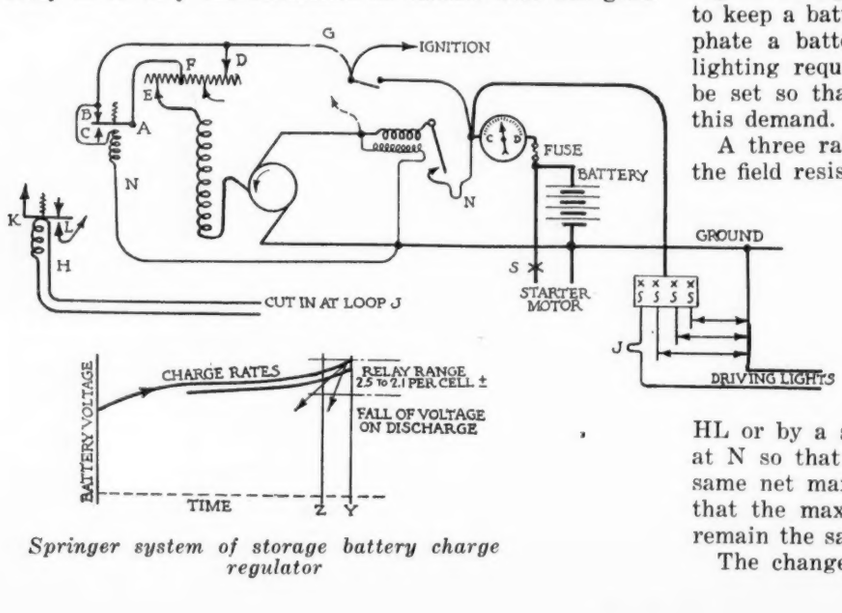
It is planned to install street fare collector's valves at the rear doors on some of the buses and a conductor's valve on the rear platform on the double deck buses. Foot-operated emergency brakes will be fitted in addition to the air brakes. While these mechanical brakes are normally operated by means of a pedal, brake levers will also be provided so that the emergency brakes can be locked if desired. On the smaller buses the emergency brakes are of the internal type and are mounted on the rear axle. In the larger size they are propeller shaft brakes.

Improvements Made in Storage Battery Charging Control

PROF. F. W. SPRINGER of the University of Minnesota, Minneapolis, has developed several improvements in methods of charge control for automotive electrical installations. These consist in modifications of the conventional third brush system designed to prevent overcharging and thus to prolong the life of the battery, prevent waste of energy and cut down the service expense.

One of the improvements consists in the provision of means whereby the charging rate is automatically cut down when the generator voltage attains a certain value. This is accomplished by means of a relay, A, which is so designed that it will not vibrate and will not shatter, and which is preferably provided with a thermostatic regulator. This relay is set so it will open the contact B when the generator voltage attains 7.5, or 2.5 volts per cell, and to close the contact from the stop C when the voltage drops to 6.3 or 2.1 per cell.

It will be seen from the diagram that the effect of this relay is to vary the resistance in circuit with the generator field winding. When the contacts of relay A are open current enters the field resistance Rf at point D, flowing through to point E; on the other hand, when the points of the relay are closed, current enters the resistance at point F and flows through to point E, which is a smaller section of the resistance. The field relay is so set that it operates at voltages above that at which the battery cut-out switch AS closes, approximately 6.3 volts. With this system separate field excitation may be obtained by connecting the field wire G to the ignition switch I.



Springer system of storage battery charge regulator

The result of these connections is a two rate system of charging, as shown by the diagram. The maximum rate is made approximately the same as in present installations, or perhaps 10 per cent higher. Professor Springer estimates that at the maximum charging rate the charge withdrawn from the battery by the operation of engine starting is restored to the battery in driving about six blocks, provided no lights are burning.

The minimum charging rate is intended as a conditioning or desulphating rate. Charging at this rate serves to keep a battery in good condition or to gradually desulphate a battery which has been neglected. Where the lighting requirements are relatively small this rate may be set so that at high speed it is a little greater than this demand.

A three rate charging system is obtained by reducing the field resistance when the lights are turned on so that a conditioning or desulphating charge rate may be obtained when the driving lights are on. An extra contact and blade on the light switch make it possible to cut resistance out of the field circuit, or a simple series relay H may be used to the same end.

A four rate system may be obtained by means of a special driving light switch HL or by a special series winding on relay A connected at N so that the battery may receive approximately the same net maximum charge with lights on or off and so that the maximum charge rate to the battery will also remain the same with lights on or off.

The changes should prove of considerable value.